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EDITORIAL

THE ROYAL SCOTTISH GEOGRAPHICAL SOCIETY: SIXTIETH ANNIVERSARY

THE history of the first fifty years of the Royal Scottish Geographical Society was fully reviewed by the late Dr. Marion Isabel Newbigin in the Jubilee Number of *The Scottish Geographical Magazine*, September 1934, which also contains recollections of the Society's early years by Dr. Hugh Robert Mill. The current volume of the *Magazine* could not fittingly be completed without a reference, however brief, to the sixtieth anniversary of the foundation of the Society, or without recording some of the signs of progress associated with the past ten years.

The Society was formally established at a meeting held in Edinburgh on October 28, 1884, and the inaugural meeting, on December 3 of the same year, was addressed by H. M. Stanley, who also opened the Rooms of the Society at 80A Princes Street on the following day. Branches were formed in Dundee and Glasgow at that time, and in Aberdeen in 1885. The Society became the Royal Scottish Geographical Society in 1887. From 1890 to 1908 the Rooms were located on the ground floor of the National Portrait Gallery. Since then the Rooms at the Synod Hall have served as headquarters of the Society and, too, as a centre for a number of other scientific societies of Edinburgh.

With some fluctuations, the number of members, 802 at the end of the first session in 1885, reached a peak, 2148, in 1911. The baneful influence of war has twice affected the fortunes of the Society. Total membership decreased to 1455 in 1918, but subsequently recovered, reaching 1702 at the end of the fiftieth session. For the next three years the latter level was more than maintained —1706, 1708, 1714. The influence of political crisis and the present war is reflected in the following years, a total membership of 1563 in 1938 being followed by 1455 in 1939, then by 1336, 1257, 1323, and 1233. In the present year this decline has been arrested, and the number of members, 1466, exceeds that of the last year of the last war. Teacher Associate Members numbered 144 in 1937 when this branch of membership was cancelled, members being transferred either to Ordinary or to Student Membership. Joint-membership of the Society and the Geographical Association (Edinburgh Branch) is now available to accredited teachers. A Corporate Membership was instituted in 1943 for the benefit of schools, the School becoming a Corporate Member on being granted affiliation. Overseas Associates constitute a new class of membership which was proposed in 1941.

Lectures to members have shown no diminution in the variety of subjects treated, nor in the quality of their presentation or in the interest aroused, even during the war years when the number of meetings at the several centres had to be lessened.

Important work has been carried on by the Place-Names Committee, the first number of the Place-Names of Scotland Series, *The Place-Names of Berwickshire*, by James B. Johnston, B.D., F.R.Hist.S., being issued in 1940. The Society also undertook the publication, in 1936, of a second, revised, edition of *The Early Maps of Scotland, with an Account of the Ordnance Survey.*

From the first volume, completed in 1885, to the thirty-fourth, in 1918, *The Scottish Geographical Magazine* was published monthly, each volume containing approximately some 700 pages. After 1916 the number of pages had to be reduced, and in 1919 only ten numbers were issued. Between 1920 and 1923 four numbers were published each year, and, thereafter, six numbers until 1939. War conditions necessitated another reduction, this time to three numbers in the year, and also, meantime, a drastic restriction of the number of pages.

In order to commemorate the work of Dr. M. I. Newbigin, editor of the *Magazine* from 1902 to 1934, a fund was subscribed in 1937, the interest to be used in awarding annually a Prize, consisting of a Bronze Medal and a sum of money, known as the Newbigin Prize, for the best essay, suitable for publication in the *Magazine*, on a subject relating to the geography of Scotland. A further stimulus to the promotion of the Society's work has been provided this year by a generous gift, by an anonymous donor, towards the editorial and illustration costs of the *Magazine* for the next seven years.

During the past ten years the Society's Library and Map Department have been manifesting satisfactory growth. Although the number of volumes received has been restricted owing to war-time conditions, the total number, 4101, not counting pamphlets and reports, added in the ten-year period is by no means negligible. More than 6000 maps and charts were received, including additions to the Society's valuable collection of early maps of Scotland. The utility of the library may be gauged, to some extent at least, by the number of books issued to members and which, though 4098 in the sixtieth session, has been averaging 5045 per year during the decennium under review. In 1911, when membership exceeded 2000, only 3564 volumes were borrowed. Throughout the years the library, reflecting the general aim of the Society, has given an opportunity and the stimulus for study and research.

For obvious reasons celebrations of the Sixtieth Anniversary of the Society could not be arranged on the scale of the memorable 1934 Jubilee Celebrations, but, thanks to the initiative of Mr. John Bartholomew, a commemoration suitable to the present occasion was organised. On October 18, in the Society's Rooms, Sir D'Arcy Thompson formally opened an Exhibition, comprising maps, photographs, drawings, and models, illustrative of the geographical environment, of activities and trends, and of post-war planning in Scotland. It is not possible to enumerate here the various exhibits, nor the names of the individuals, organisations, and authorities who co-operated in providing such attractively presented and informative material of vital interest. But mention must be made of exhibits relating to population, health, housing, national and regional planning, agriculture, forestry, hydro-electric schemes, roads and transport, geology, national parks, youth hostels, rights of way, and other aspects of the Scotland of to-day and to-morrow. Considerable interest was also aroused in a display of specimens of German invasion maps of Scotland. The Exhibition attracted many visitors from all the airts, and may be considered to have been successful in stimulating an appreciation of Scottish natural resources and trends and an interest in many of our national problems.

The names of the office-bearers who served the Society during the first fifty years, and of the recipients of its medals, were recorded in the Jubilee Number. It is not feasible here to list the names of their successors, and only a slight indication has been given of the extent and effects of work done by Members of Council and others to whom the Society owes so much of its progress during the past ten years. Not the least important part of its activities has consisted in replying to very numerous enquiries by non-members at home and abroad and in helping students and teachers, Press representatives, and others.

Geography looms large in post-war problems, and its scope will not grow less. Rather, " the scientific and general utility of a National Society for the promotion of Geography," recognised in 1884, is more obvious in 1944, and the Society will have a dynamic part to play in the years to come.

SVALBARD PLACE-NAMES

By Professor R. N. Rudmose-Brown, D.Sc.

Over three centuries of unregulated naming of Spitsbergen features, on maps, accurate and inaccurate, produced a state of chaos in the nomenclature of the archipelago. Many features had several names or alternative spellings of one name ; some names had no certain location but wandered over a wide area. And there was a duplication of similar or identical names applied to different features. One of the first concerns of Norway after assuming sovereignty of Spitsbergen in 1925 in terms of the Spitsbergen Treaty of 1920 was to entrust to the Spitsbergen Department in Oslo (Norges Svalbard og Ishavs-Undersökelser) the task of bringing order and system into the nomenclature of the group and issuing a list of standard names. It was a formidable task : every book, article and map touching Spitsbergen for over three centuries in a dozen or more languages had to be consulted and a voluminous correspondence conducted, in search of origins, with hundreds of Spitsbergen travellers. But now it is done, and even in the dark days of German occupation of Norway the volume of over 500 pages has been published as No. 80 of *Skrifter om Svalbard og Ishavet* (Oslo, 1942, 50 kr.). Naturally it is so far a rare book in this country and merits attention.

Nomenclature began with English and Dutch whalers in the seventeenth century. Spelling of these names was variable, but many persisted for long, like the Dutch Schoonhoven, Klaas Billen, Gyps, etc., and Spitsbergen itself, or the English Edge Island, Bear Island, Prince Charles Foreland. There was, however, uncertainty as to the location of some of the names and a confusing repetition of Fair, Foul, Bear (Beer), Fowl (Vogel), Whale (Kval), and other obvious names. The trappers of the eighteenth century added few names : they knew Spitsbergen better than the whalers but were not map makers. Then, in the nineteenth century, came the explorers who showered names on the west and, to a less extent, on the less accessible north and east. To this period belong many names of Swedish origin, for the Swedes were active in geological survey and liberal in assigning names. But many other names also appeared on the map. English ones were least numerous until Sir Martin Conway added his quota ; but Sir James Lamont added a few, and casual visitors left their mark. The great German map maker A. Petermann added a number of names of German and British explorers of Africa and polar regions and so introduced an exotic note into the record of names. Otherwise German names are not numerous. In the twentieth century the exploration of the interior began in earnest and led to a flood of Norwegian inland names, and on Prince Charles Foreland and in Bünsow Land the Scottish names of W. S. Bruce and J. Mathieson, and in places the English names of various Oxford expeditions. So the history of Spitsbergen was recorded in its place-names. The long prevalence of the British Admiralty Chart (No. 2751), revised from time to time, as the standard map of Spitsbergen, gave prominence to the English versions of all names which appeared on that chart.

The Norwegian Committee had over ten thousand names to consider. They laid down certain principles which in the main have been followed. The accepted names were to have a Norwegian aspect, the geographical term was to be Norwegian, and according to Norwegian practice the definite article was to be added as a suffix. The last of these principles does not apply to names commemorating royalty. Normally the earliest name is retained. Names of men and ships are not translated, but there is some vagueness as regards the translation of other

names : Green Harbour is now Grönfjorden, Icefjord is Isfjorden, and Kings Bay becomes Kongsfjorden, but Wood Bay is Woodfjorden, Bell Sound is Bellsund and Horn Sound is Hornsund (no articles). The familiar Bear Island becomes Björnöya and Hope Island Hopen. The long familiar Safe Haven, once translated from the Dutch Behouden Haven, now undergoes a new disguise and becomes Trygghamna, but Conway's Flower Valley remains so, and the recent translation to Blomedalen is revoked since the name appears to have had the double origin of noting rich vegetation and commemorising Sir William Flower. All mounts that are retained end in fjellet, fjella, berget or toppen, all capes become kapp, and the mining camps or groups of huts each of which used to be called a " city " become " -byen," e.g. Brucebyen. Several of W. S. Bruce's Scottish geographical terms have been translated, as was inevitable; e.g. Foreland Laichs are now Forlandsletta and Aberdeen Machar is Aberdeenflya : his Glenmore is ridiculously Glenmoredalen.

On grounds of priority Bruce's Edinburgh Isles give place to Forlandsöyane, and Point Napier, also on the Foreland, gives place to Dawespynten, but the name of that Spitsbergen captain remains in Kapp Napier in Billefjorden. Bruce's Sidlaws, at the northern end of the Foreland, is one of the names discarded as superfluous, a designation hard to justify, and one of the peaks of the Sidlaws which Bruce named Mount Conway becomes arbitrarily Fuglehukfjellet on the plea of avoiding duplicate names. The old-established Vogel Hoek is now translated to Fuglehuken. Bruce's Meall an t-Suidhe is translated to Sesshögda. It should have been noted that his Geddes Beaches, now Geddesflya, commemorate not only Sir Patrick Geddes but also his son Alasdair Geddes, a companion of Bruce in Spitsbergen. It is difficult to understand why the old name of James I Land has been pushed south, to an area of doubtful inclusion, unless to make room for Albert I Land and Haakon VII Land, which, however, are most fit names for the areas they embrace.

A few names have been added for one reason or another. Mathiesondalen in Billefjorden (Klaas Billen Bay) commemorates one of the great Spitsbergen surveyors and Brucebukta replaces the old name of Seahorse Bay which Bruce erroneously believed applicable to an inlet on the Foreland. Bruce's Cape Cold, an old name, is moved a little north as Kaldneset, and his Ferrier Haven goes in favour of the old name of Seahorse or Zeehonde, now Selvågen. Mistakes and omissions are very few, but some confusion about the Northern Grampians of Bruce, now Grampianfjella, may be noted. The Norwegians, in doubt owing to the position of the name in Bruce's map of 1913 of Prince Charles Foreland, propose to confine the name to the range from Monacofjellet in the north to Jessiefjellet in the south, both peaks inclusive. This was probably not Bruce's intention, which was to use the name for the whole range from Hellandfjellet to Jessiefjellet. The mistake arose through no proof of the 1913 map being submitted to Bruce by the Paris printer employed by the Prince of Monaco (see *British Association Report*, Section E, 1910).

All names are listed in one alphabet, accepted names in heavy type, discarded names in italics. The origin of names is given, throwing much light on the byways of Spitsbergen history. The uses of the names Svalbard and Spitsbergen may be noted. Svalbard is a " group name of all the islands in the Arctic Ocean which were placed under the sovereignty of Norway by the Treaty of Paris of Feb. 9, 1920. The islands are situated between 74° and 81° northern latitude and 10° and 35° eastern longitude." The name Spitsbergen, with a medial s, is used for the following islands, and smaller adjacent islands: Vest Spitsbergen, Nordaustlandet, Edgeöya, Barentsöya, Prins Karls Forland. Other islands in the group do not belong to Spitsbergen proper. The most easterly island of the group is Kvitöya, White Island or, in spite of Norwegian opinion, probably Giles Land.

The definitive names in this list are being accepted by the British Admiralty in charts and sailing directions.

GRONFJORDEN (GREEN HARBOUR)

Photo by W. S. Bruce, 1914.

NOTES ON THE GEOGRAPHICAL DISTRIBUTION OF EMPLOYMENT IN SCOTLAND

By Catherine P. Snodgrass, M.A., Ph.D.

It is generally accepted by qualified town and country planners that regions and large towns should provide a variety of occupations for their inhabitants and a proper balance of employment for men and women and for older and younger people. Before we can plan for such a well-balanced employment structure throughout Scotland, we must know the facts of the present situation: whether the occupations in the several parts of the country, and in the country as a whole, are varied, giving a choice of work to suit different aptitudes and tastes, and giving the community a broad basis in experience; or whether occupations are one-sided, giving little satisfactory outlet to many people, with consequent frustration or semi-involuntary emigration and causing great danger of wide-spread depression and distress during economic blizzards. In this article an attempt is made to contribute to this national stock-taking with respect to variety of occupation and to balance between work for men and for women.

Fig. 1 shows areas and large burghs with over 30 per cent. of their "occupied" population in one type of industry, in so far as it is possible to obtain information on employment from the 1921 and 1931 censuses. Unfortunately the data in 1931 are given only for the counties, the four cities, and twenty of the large burghs with over 17,000 inhabitants. The census of 1921 gives figures for some of the other burghs as well, and these have also been used in compiling the map.

Fig. 2 shows the number of women workers in each county and city as a percentage of the men workers. (It should be noted that unsalaried home workers are classed as unoccupied). This very important factor in contributing to human and social well-being has had little, if any, regard paid to it in the past. If we are to build healthy, emotionally satisfied, and socially wholesome communities, a proper proportion of work should be available for women, and also for young people of both sexes in every district and large town. There should not be large numbers of single women living in lodgings and hostels (except for educational purposes), nor married women working out of the home unless they have a strong personal urge to do so, nor numbers of young people in the vulnerable and impressionable teens forced to work hundreds of miles from their homes, and other communities left with an undue proportion of older people.

In Scotland the average percentage of women to men workers is 43. Percentages considerably below the average (25-35) are found in the mining districts, the iron industry towns, and in most counties where agriculture occupies a high proportion of the people. Percentages above the average occur in holiday areas—for instance in Bute, where there are large numbers in personal service—and in the cities. Percentages well above the average occur where textile manufacturing is much developed, the highest figure being in Dundee, 78 per cent.

The proportion of women to men workers is high in comparison with that of several other countries cited in the *League of Nations Yearbook*. For example, in Canada the percentage is 20, in the U.S.A. 28, in Holland 32. On the other hand it is 42 per cent. in England and 55 in Germany; since the number of women given in agricultural work there is approximately equal to the number of men, this figure presumably includes the wives of peasant-farmers. If this number is subtracted the percentage is comparable with that in Holland.

Map 1 indicates that there are five main types of employment which in one district or another occupy a large proportion of the people.[1]

In most of the northern counties except Zetland, where there is an important home textile industry, Banff, where fishing is highly developed, Moray and Nairn, and, if the large burghs of Inverness, Perth and Arbroath be excluded, there are over 30 per cent. in agriculture—in fact generally about 35 per cent.—

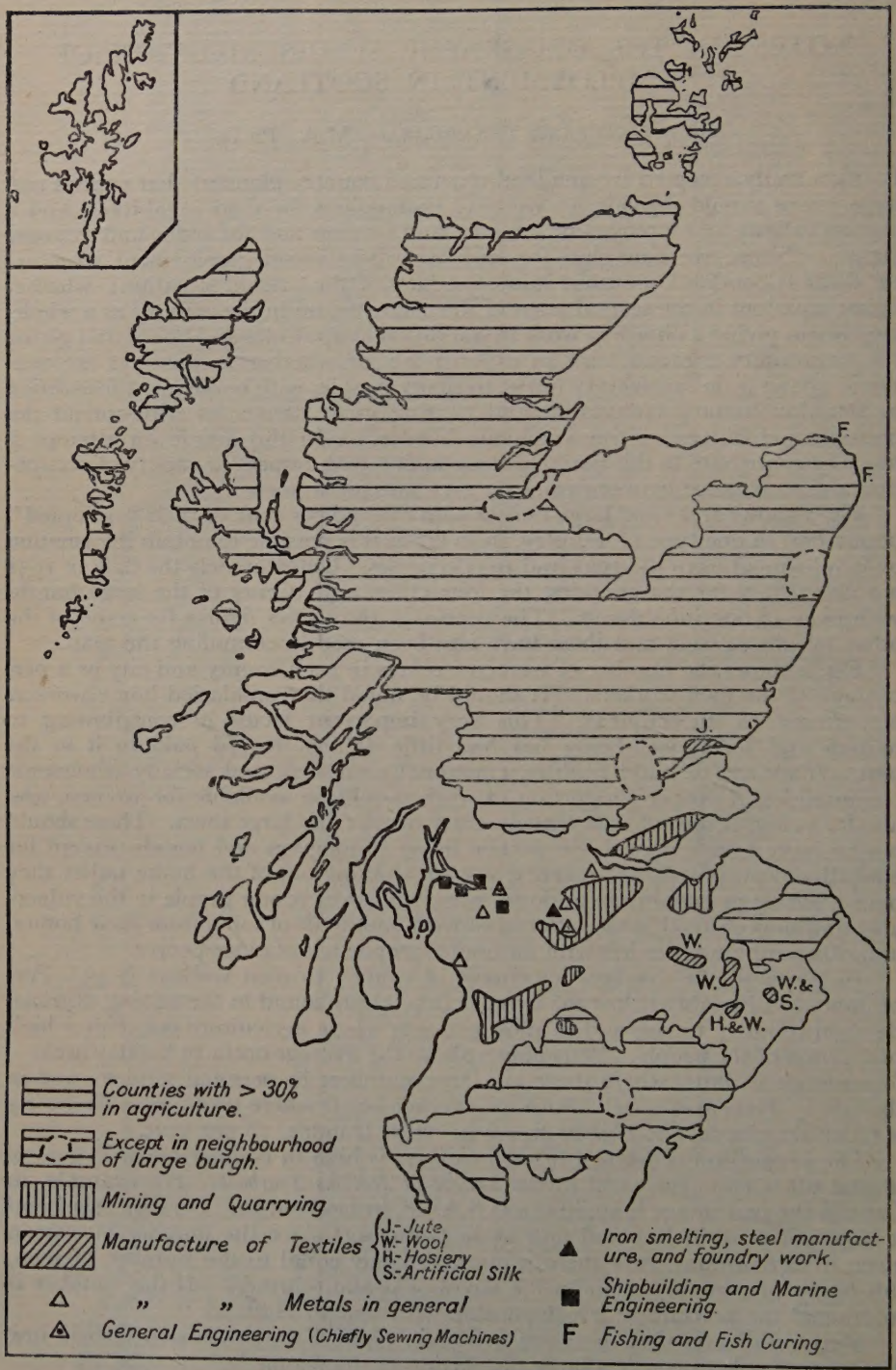


Fig. 1.—Areas and large burghs in Scotland with over 30 per cent. of their occupied population in one type of industry.

but in Orkney 50. In the counties of the Solway and lower Tweed there are also over 30 per cent. in agriculture, if Dumfries and Hawick be excluded. Many normally flourishing W. European countries like Sweden, Denmark, Norway, and France have over 30 per cent. of their workers in agriculture, but in Scotland most parts of these counties in question lack a sufficient development of intensive agriculture or other productive occupations to absorb all their young people and give them a choice of work. For this and other reasons their populations are generally declining, and there are relatively few people in the early years of working life (15 to 44) as compared with the Central Lowlands. The other reasons are the mechanisation of agriculture and, to a much greater extent, the lack of appreciation of the importance of agriculture in the nation's life with consequent under-development of modern amenities, such as electric light and power, in the country districts, deterioration of marginal land, and farming below the degree

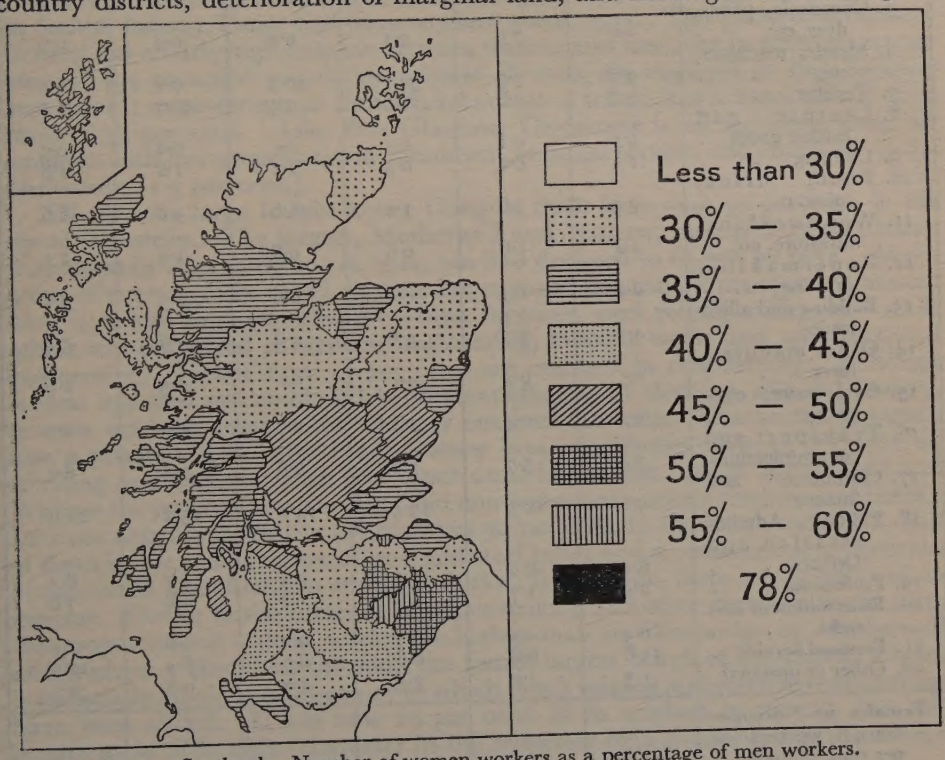


Fig. 2.—Scotland. Number of women workers as a percentage of men workers.

of intensiveness possible with our natural resources and modern technique and necessary to give our people an adequate supply of fresh " protective " foods : See example, Berwickshire, in Table (p. 72).

The only statistics available for fishing towns, apart from Aberdeen city, which has a fairly well-balanced employment structure, are those for Peterhead and Fraserburgh in 1921. At that time fishermen numbered 15 to 20 per cent. of the working population and those engaged in fish-curing a further 20 per cent.

In the manufacturing towns of the Tweed Basin there are over 30 per cent. in the textile industry, chiefly the manufacture of woollens, with important production of hosiery and knitted goods in Hawick and artificial silk in Jedburgh. In Dundee over 40 per cent. of the working population are in the textile industry, practically all in the manufacture of jute.

In most of the coalfields over 30 per cent. are engaged in mining, the major exceptions being N. Ayrshire and E. Stirlingshire as a whole where important industrial developments keep mining below the 30 per cent. level: see example, West Lothian, in Table (p. 72).

EMPLOYMENT STRUCTURE OF CERTAIN SCOTTISH COUNTIES AND BURGHS, 1931

PERCENTAGE OF "OCCUPIED" POPULATION IN DIFFERENT INDUSTRIES

	Berwick-shire.	West Lothian.	Dumbarton.	Coatbridge.	Dundee.	Edinburgh.
1. Fishing	3·6	—	—	—	0·1	0·5
2. Agriculture and forestry	37·6	5·8	1·0	0·5	0·7	1·3
3. Mining and quarrying	0·9	30·1	0·2	8·9	0·2	1·3
4. Manufacture of bricks, glass, pottery, etc.	—	1·2	—	0·9	—	0·4
5. Chemicals, paints, dyes, etc.	—	7·0	0·1	0·2	0·4	0·9
6. Metals, machines, etc.	2·6	7·7	52·7	40·7	7·6	6·1
7. Textiles	3·8	2·6	2·9	0·4	40·7	1·2
8. Leather and leather goods	0·1	0·1	—	—	0·2	0·3
9. Clothing	1·3	0·6	0·5	2·1	1·2	1·8
10. Food, drink, tobacco	3·5	2·6	1·2	2·6	3·8	6·6
11. Woodworking, furniture, etc.	1·4	1·6	0·9	0·8	1·9	2·1
12. Papermaking, printing, etc.	2·2	1·4	—	0·6	2·3	5·1
13. Building and allied trades	4·3	3·7	3·6	4·8	3·6	5·4
14. Other manufactures	—	0·2	—	—	0·5	2·9
15. Gas, water, electricity	0·2	0·4	1·1	0·7	1·0	1·0
16. Transport and communications	3·4	5·7	3·6	6·8	5·3	8·6
17. Commerce and finance	9·6	12·5	13·5	14·2	15·2	21·6
18. Public Administration and Defence	6·1	6·2	7·4	5·4	4·7	8·5
19. Professions	2·2	1·7	2·6	1·7	2·8	7·8
20. Entertainment and sport	0·4	0·5	0·7	0·7	0·6	1·2
21. Personal Service	15·8	6·8	6·6	6·7	6·4	12·7
22. Other or unstated	1·3	1·9	2·4	1·3	0·8	2·7
Females in "occupations," workers as per cent. of males	34	25	32	27	78	56

Finally, in Falkirk, Irvine, and a series of towns in the Clyde Basin over 30 per cent. of the working population are employed in the metal industries, i.e. category 6 of the Census Tables, which includes manufacture of metals, making of machines, conveyances, watches, and jewellery.

Port Glasgow, with a total population of barely 20,000, has half its occupied population engaged in shipbuilding and marine engineering. This industry employs men almost exclusively, but the presence of textile workers making chiefly ropes and canvas goods brings the ratio of women to men workers up to 36 per cent. The town is an example of an industrial town *par excellence*, and the numbers in non-industrial employment are small even when compared with some of the other industrial towns of the Clyde Basin. There are only 1·6 per cent. in the professions, barely 10 in commerce, and 3·4 in personal service. Greenock (79,000) has 30 per cent. in ship-building and marine engineering and 6 per cent. in other branches of the metal industries. It has, however, a fairly high proportion of women's to men's work, 37 per cent. Some of the women are engaged in

the manufacture of ropes and canvas goods, a feature to be expected in a shipping centre, but still larger numbers are employed in making hosiery and knitted goods and woollens. In consequence of its importance as a port, it has nearly three times as large a proportion of its people in transport as Port Glasgow, and it has larger proportions in personal service, commerce, and the professions.

Dumbarton (22,000), once the capital of the ancient kingdom of Strathclyde, now finds itself in the category of industrial town with 39 per cent. of its workers in shipbuilding and marine engineering and 13½ in other branches of metal manufacture. Women workers number 32 per cent. of the men (see Table). Its now larger neighbour, Clydebank (47,000), which more than quadrupled its population between 1891 and 1921, has the record figure of 61·8 per cent. in the metal industries; 34 per cent. of the workers are in general engineering, presumably in the large sewing machine factory, which, according to C. A. Oakley in *Scottish Industry Today*, had 8000 workers about 1935. This particular industry in itself has a fairly high balance between women and men, but in addition, 25 per cent. of the occupied population, almost all men, are engaged in ship-building and marine engineering, so that Clydebank as a whole has a female/male work ratio of 33 per cent. Like Port Glasgow, Clydebank is an industrial town *par excellence* with low proportions in commerce, personal service, and especially in the professions (1·3 per cent.).

Of the four large burghs above Glasgow three have over 30 per cent. in the metal industries. The largest, Motherwell and Wishaw, increased in population from 2000 in 1841 to 69,000 in 1921, but had declined to 65,000 by 1931. About 3 out of every 5 of its metal workers are engaged in primary processes connected with iron and steel manufacture—blast furnaces, steel rolling mills, etc.—while others are employed in general engineering, foundry work, and constructional engineering. In addition, 15 per cent. are engaged in coal-mining. Although several hundred are employed in the manufacture of clothing, silk and hosiery, women workers number only 27 per cent. of the men. Coatbridge (43,000), also a product of the nineteenth-century iron manufacture, has 33 per cent. in smelting and foundry work and 9 per cent. in mining. As in Motherwell and Wishaw the proportions of women and non-industrial workers are low (see Table). Its close neighbour Airdrie (26,000) has 30 per cent. in the metal industries, half of them in the manufacture of iron and steel tubes and a considerable proportion of the rest in blast furnaces and steel works. In addition, there are 12 per cent. in mining. Owing to the presence of paper-making and some textile manufacture, the proportion of women workers is higher than in Coatbridge or Motherwell and Wishaw. Hamilton (38,000), the fourth largest burgh of the middle Clyde, is essentially an old market centre to which much mining and some manufacturing have been added. It has now 29 per cent. of its workers in mining, but still retains some of its older character in the relatively high proportion in the service occupations, especially public administration.

Falkirk (37,000) in 1931 had fully 40 per cent. in the metal industries including 21 per cent. in the manufacture of stoves, baths, and other light castings and 15 per cent. in general foundry work. Of the smaller burghs of Renfrewshire given in the 1921 Census, Renfrew had 30 per cent. in ship-building and marine engineering and 28 per cent. in other metal industries, Gourock 18 per cent. in ship-building, and Johnstone 28 per cent. in general engineering and 28 per cent. in textiles of several types. In N. Ayrshire, Irvine had 29 per cent. in ship-building and marine engineering.

The two largest burghs of the Clyde Basin, Glasgow and Paisley, and the old Royal Burgh of Rutherglen do not have over 30 per cent. in any one type of industry, and, unlike most of the other large burghs of the region, did not decline in population between 1921 and 1931. Paisley (86,000), however, had 28 per cent. in textiles, three-quarters of whom were in the thread mills. As a large number of these were women, Paisley has a high proportion of women to men workers, 55 per cent. Its second largest employment is in the metal industries with 19 per cent., but with fair variety within the group. Rutherglen (25,000)

has the high proportion in commerce (over 20 per cent.) and personal service characteristic of a regional centre, such as Stirling, though in many respects the burgh has become a suburb of its old rival, Glasgow. It partakes also in the general industrial character of the lower Clyde Basin with 18 per cent. in the metal industries including important smelting and foundry work.

Glasgow itself (1,088,000) has also the high proportion in commerce and personal service of a regional centre, but a small proportion in the professions compared with the capital and also with Aberdeen—3·4 compared with 5 in Aberdeen and 7·8 in Edinburgh. On the other hand, it has a relatively high percentage in manufacturing industries—47 compared with 34 in Aberdeen and 33 in Edinburgh. Though the industrial structure shows considerable variety, the metal industries are by far the most important, employing 105,000 people, 99 per cent. of whom are men. But its metal industries themselves have considerable variety. They share in the activities of the estuary towns, nearly one-third of the metal workers being in ship-building and marine engineering, and to a lesser extent in the primary processes of the coalfield burghs. But Glasgow's position rather as a finishing centre is shown by the relatively greater numbers in other branches, especially general engineering. It is also the chief organising centre for the industry of the basin as a whole, hence the prosperity of the latter is reflected in that of the city.

The Clyde Basin between Wishaw and Greenock thus contains a number of towns which individually have badly balanced economic structure and others which approach that category. The gravity of the problems of this region is increased by the fact that, with few exceptions, all these burghs are over-balanced in the same or closely allied directions, and that the prosperity of the ancillary industries to ship-building and marine engineering—iron smelting and steel manufacture and, at a more remote step, coal-mining—are all closely bound up with the prosperity of the former. The lower Clyde has too many eggs in one basket, and one very highly dependent on a world distribution of production and trade which was in large measure of a temporary character. The disadvantages have been all too apparent during the depressions of the last century and especially during the big depression of the early 1930's. In 1931 the unemployment figures for the Clyde Basin below Wishaw were very high. Among men workers they reached the enormous proportion of 61·8 per cent. in Port Glasgow. Greenock, Clydebank and Dumbarton had between 30 and 40 per cent. of their men workers unemployed, and the rest of the Clyde industrial area, including Glasgow, between 25 and 30 per cent. In Edinburgh and such regional centres as Perth, Inverness and Stirling the corresponding figures lay between 10 and 15 per cent., in Aberdeen city and the agricultural counties of S. and E. Scotland between 5 and 10 per cent. Another disadvantage is that choice of occupation tends to be limited, while many parts must tend to have a one-sided outlook conditioned by lack of variety in occupation of the people forming the social groups and by lack of adequate cultural and social amenities. Though Falkirk has over 40 per cent. in the metal industries, it is not in nearly such a dangerous position economically since half its metal workers are making household fittings and appliances and there is need for a tremendous improvement in Scottish housing.

There seems to be great need to diversify the bases of the industrial life of Clydeside. If the Birmingham area situated several hundred feet above sea-level on one of the major watersheds of England can do this, and the Scandinavian countries with their small populations and northerly latitudes can develop a variety of modern industries, surely so can the lower Clyde on a navigable estuary with inherited skill among its workers, the possible services of some of the world's best scientists, and in a favourable position with respect to the rest of Scotland and to the world generally. The construction of a ship-canal between the Forth and Clyde linking the North Sea and the Atlantic along the Great Circle (i.e. shortest) routes between North America and many important parts of Europe would no doubt greatly facilitate this diversification as well as benefit the sailors of the world.

Among the areas requiring greater diversification are the other coal-mining districts having over 30 per cent. of their workers in mining. These include the Midlothian and Fife fields, which now have larger reserves than the Central field. Fortunately, the Midlothian authorities are making careful plans for the development of additional industries, both heavy, near some of the biggest mines, and light in carefully chosen zones in proximity to the Esk Valley burghs, which are to be separated from the city of Edinburgh by a " green belt " of agricultural land. No doubt similar plans will soon be ready for Fife. Though the two large burghs of ancient lineage on the edge of the field, Dunfermline and Kirkcaldy, have a considerable variety of industrial development, there is great need for other types of employment in some of the coalfield towns and especially of work for women. In 1921 Buckhaven, Methil and Innerleven had 51, Cowdenbeath 63, and Lochgelly 67·5 per cent. of their working population in coal-mining, and the percentage of work for women was low, 23, 24, and 19 respectively.

Dundee is another striking example of a too-many-eggs-in-one-basket town and of a precipitate, ill-considered nineteenth-century expansion (see Table). This time the concentration was on jute manufacture, an industry which developed from an earlier linen and hemp manufacture using at first local, and later Baltic, raw material. With the recent development of jute manufacturing near its chief place of production in Bengal, Dundee has been in a serious plight. Fully a quarter of its workers were unemployed in 1931. Besides the bad feature of undue concentration on an industry dependent entirely on the import of the raw material and largely on the export of the finished product, Dundee has two grave social features, namely, women workers have the abnormally high proportion to men workers of 78 per cent., a figure comparable with those of some of the " cotton towns " of N.W. England, and it has a very high proportion of married women working outside the home—33 per cent. compared with a Scottish average of 6·4. Compare Edinburgh (see Table) with its industrial variety.

The woollen manufacturing towns of the Tweed Basin have also too high a proportion of women workers. In 1921 Hawick, where hosiery manufacture is important, had 69 and Galashiels, where the chief concentration is on the manufacture of woollens, had 62 per cent. The woollen and hosiery manufactures of the Border towns are famed for their quality and well adapted to the needs of the people of our own and neighbouring countries. Compared with the Clyde or Dundee these towns had fewer unemployed during the big depression. It would seem desirable, however, to have a greater variety of industry in the region and especially some new ones employing chiefly men.

What of the employment structure of Scotland as a whole ? There are only 8 per cent. of the occupied population in agriculture. This is a very low proportion compared with all other European and N. American countries except England and Wales, where the proportion is only 5. Belgium is next lowest with 19, but there many industrial workers have plots where they grow vegetables and keep pigs and poultry and perhaps a cow. The U.S.A., Holland, and Switzerland have figures between 22 and 26, while Germany, Denmark and Norway have over 30 and France and Sweden approximately 40 per cent. In 1794 about 43 per cent. of the people of Scotland were engaged in agriculture, in 1871 there were still about 18 per cent. There is now a high proportion in the " service " occupations, in this case comparable only with England and Wales, U.S.A. and Canada, and from 10 to 20 per cent. higher than in the other countries of W. Europe. The percentage in mining and manufacturing (44 per cent.) is similar to that in England and Wales, Belgium, Germany and Switzerland. It is 6 per cent. higher than in Holland, 13 per cent. higher than in U.S.A. and Sweden, and 17 per cent. higher than in Denmark, Norway, and Canada.

Within the manufacturing group there is a great concentration on the metal industries (12·5 per cent.) and a secondary concentration on textiles (7 per cent.), slightly greater even than the corresponding concentrations in England and Wales. Compared with England and Wales there is an under-development of the leather, clothing, boot and shoe and the brick and pottery industries, and of

the building trades, while the metal group lacks the diversification now characteristic of the English Midlands where many new light engineering manufactures have been developed within the last twenty years. There would seem to be great need to diversify the industrial basis of Scotland as a whole by reversing the drift away from agriculture that has characterised the last seventy years, and the withdrawal from fishing of the last twenty years, and by introducing more variety into the manufacturing industry. Especially, there should be an introduction of new products such as plastics, synthetic materials, electrical equipment, radios, televisors, aeroplanes, and a concentration to a much greater extent on the production of domestic goods already in constantly renewable demand, especially in our own country, or likely to be so, if the standard of life among the majority of the people is raised to the higher level now physically possible.

[1] A similar map for England and Wales in *Ill-balanced Communities-problem in Planning*, by A. E. Smailes, M.A. Creative Demobilisation, vol. II. Case Studies in National Planning, pp. 226-246. Edited by E. A. Gutkind. London: Kegan Paul, Trench, Trubner and Co. Ltd. 1943.

THE CHOICE OF NAMES FOR HILLS AND HILL MASSES IN SCOTLAND: CENTRAL HEIGHT, "EDGE-HILL," AND REGION

By Arthur Geddes

It may seem surprising that at the present day a well-recognised name is lacking for no less than three important hill masses of the Central Lowlands, or Mid-Lowland, of Scotland. These are: (1) the low, rolling moorland plateau south-east of the Lochwinnoch Gap, for which the historic name, handed down by an as yet unbroken, oral tradition, seems to be "Mathernock" or "Mathernock Muir"; (2) the well marked, lava plateau standing to north-west across the Gap of Lochwinnoch, and continuing the Ayrshire–Renfrew boundary to near Gourock, a hill mass for which a name is "the Mistylaw Hills"; and (3) the group of lava plateaus across the Clyde extending from Kilpatrick east-north-east to Gargunnock, near Stirling, "the Lennox Hills." The preparation by the Ordnance Survey of a new physical map, with a view to surveys for national town and country planning, have led to fresh enquiries and the rediscovery by Dr. A. Dunlop of a name for the first of the three hill masses. It is appropriate to complete her study by a note upon the other two hill masses, with reference to the geographical principles which concern Scots hill names, traditional and modern.

Most of the hill masses of Scotland are dissected plateaus, rising abruptly from low ground to well marked "edges" or outlying summits, and thence mounting gradually to a distant "central" height or peak. This summit-peak may sometimes be better known by sight and name to people dwelling perhaps 20 to 40 miles away, than to those dwelling near the foot of the range, to whom the nearest "edge-hill" is the more familiar. Where the extent of a range and the scale of a map allow of printing the names both of edge-hills and also of summit-peaks, both can, of course, be included. Where restriction of size and scale forbid all but one name, the choice is more difficult, but on the whole the summit-hill rather than the edge-hill may have to be given.

In certain cases, however, where the name of a hill mass is concerned, usage may justify the choice of the name of an edge-hill, rather than of a summit, for the range or massif to which both hills belong. This is what has happened in the case of Cairn Gorm and its range. It is the forward-standing edge-hill, Cairn Gorm, with its "dark blue cairn (or cliff-and-scree)" seen from the north in shadow against the sun, and not the more distant summit-peak, Ben Macdhui,

which has given the modern, " tourist " name to the pink granite range still known to Gaels as the Monadh Ruadh, a name meaning the Red Hills, in contradistinction to the hills of schist lying to the north-west, the Monadh Liath or Grey Hills. We would do well to remember the traditional name, which is the right one for a geographer who wishes to retain descriptive truth and to respect regional and national tradition. Happily, however, neither alternative misnames the range from a foothill locality, and even " tourists " have not forced us to say " the Aviemore " or " Balmoral Mountains " !

With this principle of " edge " and " summit " in mind, let us turn to " the Mistylaw Hills." *Groome's Ordnance Gazetteer* (last edition, 1901) states that the term " is in use in the parish of Kilwinnoch." Enquiries are now proceeding to verify the point at the present day, and discover whether the term is also used elsewhere. The name " Mistylaw Muir " appears on the flanks of the hill in the Ordnance Survey half-inch and one-inch maps ; and the name " Mistylaw Hills " is accepted for the whole mass in *Johnston's Gazetteer of Scotland*. Although Misty Law is only 1663 feet high, while the summit-hill, the Hill of Stake, is 48 feet higher (1711 feet), Misty Law stands out more strikingly as an edge-hill, fronting the populated southern and eastern sides of the range, with its steep flanks and well-marked silhouette. Where decision is difficult (as in this case), the expressiveness of the name may help in making a final choice. The word " Misty " may be a misinterpretation by local folk of some other original word ; but it means something to them, and conveys a hint of the landscape. Here on the moist west coast, local people in forecasting the weather probably use the occurrence of mist upon the hill as a sort of barometer, much as people living in the Eden Valley in Cumberland watch the helmet or " helm " of mist brought by the sou'westerly " Helm Wind " to Cross Fell, the highest peak of the Pennines. " The Mistylaw Hills " is not only an expressive, characteristic name ; it avoids the confusion arising when the whole mass is known by the name of either of the counties of Renfrew or Ayr, of which it forms the march, or of any one foot-hill locality, whether Lochwinnoch, Kilbarchan, Largs, or any other.

What of the " Lennox Hills " ? A name is needed to cover the hill mass of which the fragments and sides are known as the Kilpatrick Hills, Campsie Fells, Kilsyth, Fintry, and Gargunnock Hills. Any one of these hillfoot-village names is quite inadequate for this hill mass, which is referred to in *Groome's*, *Bartholomew's*, and *Johnston's Gazetteers* as the Lennox Hills. These hills border the region of Levenach (Gaelic: Leamhnach)—that is Loch Lomondside with its tributary valley, Strath Blane, and the Valley of Leven, and the surrounding uplands. The name was further extended as far as Loch Long to the west and Lennox Castle and Lennoxtown (on the Blane–Kelvin watershed) to the east, by the addition of a plural, " Levenachs " shortened to Lennox, as the lord of Levenach extended his original domain to include the lands of what became an earldom. The name Leamhnach, wrote Professor W. J. Watson, is in use by speakers of Gaelic. " Lennox " is familiar in the West of Scotland for the region of Levenach and its surroundings, and when repeatedly enquiring of friends in the region " Where are ' the Lennox Hills ' ? " I have unfailingly received the reply that the name must cover this entire group from Kilpatrick to Gargunnock.

Were these three names to be finally recognised and adopted on maps and in writing, the nomenclature would then be complete for the dual series of the two Mid-Lowland hill masses. The three northern heights of the Mid-Lowland would be the Sidlaws, the Ochils, and the Lennox Hills, and those of the three southern heights would be the Pentlands, Mathernock Muir, and the Mistylaw Hills.

To conclude, there appear to be sound, intrinsic reasons for the adoption of the name " Mistylaw Hills " and an undoubted case for that of the " Lennox Hills."

MATHERNOCK MOOR: CO-OPERATIVE SEARCH FOR A PLACE-NAME

By A. I. Dunlop, O.B.E., D.Litt.

We were looking for an elusive old road when we stumbled upon a forgotten moor, and wondered if we had thereby provided the geographers with a clue to the lost name of the moorland between the River and the Firth of Clyde. Our investigations have been a piece of team work on the part of contributors to Ayrshire Notes in the *Kilmarnock Standard*. Curiosity was first aroused by a description of Roman remains found at Allanton Beg, near Loudoun Hill. This Roman fort had been excavated in 1938 in the course of tracing the route of a Roman road from the neighbourhood of Lanark, by Avondale and the Irvine Valley, to the Ayrshire coast. The archaeologists temporarily suspended operations at Loudoun Hill, but they were persuaded that some line of communication must have linked up this strategic position with a seaport on the Clyde.

A reader, impressed by these facts, then pointed out that some years ago the late Dr. George Neilson, in editing Barbour's *Bruce*, had tried to locate the "strate place" in "Makyrnokis Way" where Sir James Douglas entrapped an English army marching from Bothwell to Kyle in 1307. He concluded that it must be near Kilmarnock, because the discomfited leader fled

> "To Kylmernok and Kilwynnyn,
> And till Ardrossan eftir syne,
> Syne throu the Largys, him allane,
> Till Ennirkyp the way has tane."

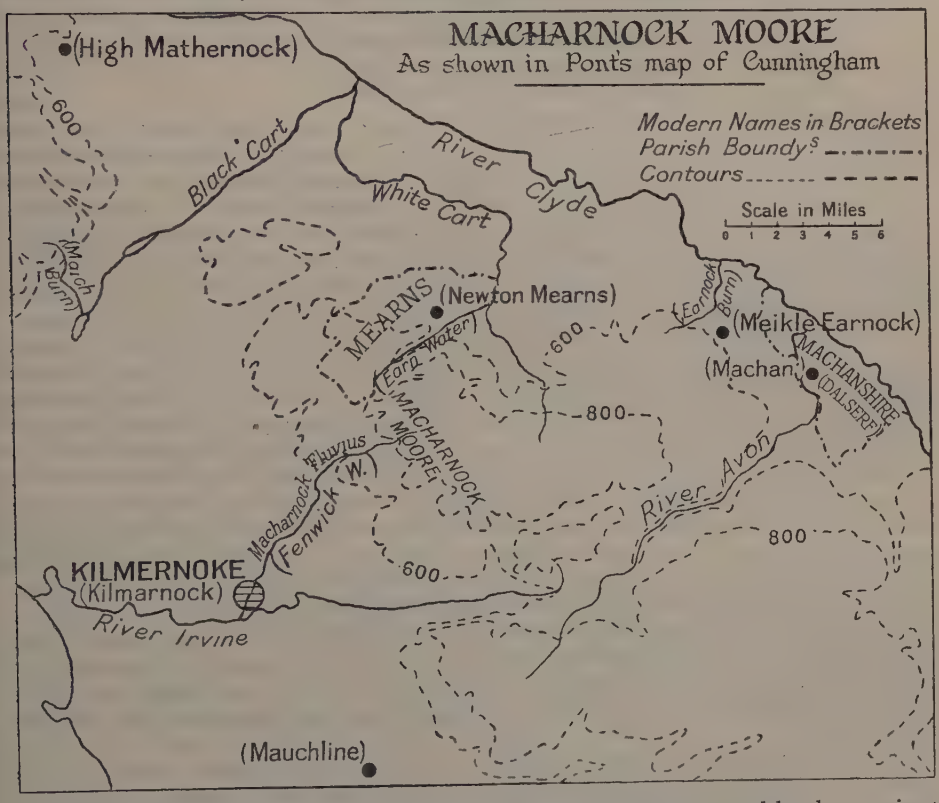
The query arose, therefore, whether Makyrnokis Way might have followed the track of an old Roman road, and, if so, whether it passed through Fenwick parish, where a moor, about two miles from the village along the Glasgow road, was known as Mathernock within living memory. So completely, however, has the name dropped out of use that it was quite unknown to young farmers actually living upon its soil. In commenting upon this remarkable fact the thought suddenly occurred that this local name might be a clue to the defunct regional name, if not the very name itself, for which the geographers were searching.

Following up this suggestion, we found from the Register of the Great Seal and the Register of Retours that in the sixteenth and seventeenth centuries the moor of Mathernock (commune de Mauchirnoch, Machirnochemure, Machernokmure) was indeed an extensive tract of waste or common land in the baronies of Powkellie and Rowallan in the bailiary of Cunningham. Turning next to the evidence of old maps, we found that the name Machernock Moore appears in bold letters in Blaeu's map, based upon Pont's topographical survey of Cunningham (*c.* 1610-1620). It there denotes a district in the upper part of the modern parish of Fenwick, on the borders of Renfrewshire. It contains the head waters of a stream marked Macharnock Fluvius by the cartographer, but now known as the Fenwick water until with its tributaries it forms the Kilmarnock Water in its lower reaches. Herman Moll's map in *Scotland Delineated* (London, 1745) follows Blaeu in showing Mackhar River with Macharnock Moore to the north of it.

These records leave the limits of Mathernock Moor undefined, but there is indication that the wasteland region stretched in the direction of Kilbirnie and Beith to where the Maich Burn today forms the boundary between Ayrshire and Renfrewshire. It is at least noteworthy that the barony of Powkellie included the lands of Gree, Drumboy, and Balgray. These are still farms in Fenwick parish, but the names are equally familiar to a native of Dalry, who writes: "The Maich Burn we know well; also Drumboy and Balgroy. As to Gree, we have the Powgree Burn, and Gree is a local name." The Balgrays are fairly plentiful throughout Ayrshire, and there is a Drumboy in the parish of Darvel. This multiplication of place-names suggests common geographical features throughout

the whole region. In this connection, it is remarkable that although the name Mathernock has died out as regards Fenwick Moor, it still exists as the name of a farm near Kilmacolm in Renfrewshire. Here also the name is of considerable antiquity, as Dr. Murray, historian of Kilmacolm parish, points out that Mathernock in the barony of Newark is mentioned in a Poll-Tax Roll for the year 1695.

The prevalence of the prefix Math-, or variants thereof, throughout the area also suggests that it was originally one comprehensive tract, stretching in bog land and forest from Machan-mure and Machanshire (or Mauchanshire : modern Larkhall) in the Clyde Valley to the Ayrshire coast, and from Mathernock at Kilmacolm to the Maich Burn (which appears as the Water of Mauch in a royal charter of 1430) through Mathernock Moor and Water by Mauchline to the Machars in Galloway. The curious will be able to accumulate other examples



of this prefix in place-names within this area, comprising roughly the ancient Kingdom of Strathclyde.

So much for the prefix ; but another correspondent has raised interesting new possibilities by shifting the emphasis from the prefix to the root, from " Mach " to " Earn." He writes that " the district lying to the north east of Kilmarnock from the upper Irvine to the Clyde at Glasgow may have been one of the many districts the name of which has been governed by the word ' Earn '." For one thing he thinks that it is the main root in the word Kilmarnock. The name appears in 1299 as Kilmernoke, and this may signify not " the cell of St. Marnock," as is commonly supposed, but the " Church on the Earn Burn." According to this theory, the interpolation of the letter M would indicate the word " ma " or " mo " (" dear " or " beloved ") or even " mach " ; and the final -ocke is a diminutive. Mearns, the name of the neighbouring parish to Fenwick, comes from the same root, and carries the basic name over from Ayrshire into Renfrewshire, while the Meikle Earnock Burn reproduces it in Lanarkshire.

In that case the evidence of both prefix and root suggests that the ancient Kingdom of Strathclyde comprised a comprehensive region of marshy, wooded moorland, of which a large central portion was known as Mathernock. The name still survives as applied to a farm in the parish of Kilmacolm, and it was in common use about half a century ago in the parish of Fenwick (originally New Kilmarnock); but there, at one time, besides the moor, it included also the Fenwick (or Kilmarnock) Water, if not also the town of Kilmarnock. If Mathernock Moor was traversed by Makyrnokis Way—whether a Roman road or a mediaeval track—it had also a strategical importance on the line of communication between East and West.

SOME SOUTH INDIA HILL STATIONS

Concluded from Vol. 59, p. 87

By Mary Shaw, B.A. (Hons.)

South of the Nilgiris beyond the Palghat Gap are certain offshoots of the Western Ghats, though connected with the main formation, namely, the Palni Hills and the Cardamon Hills. The former have become important as the second district in South India for hill-holidaying at the rapidly growing hill-station of Kodaikānal. Situated in the Madura District, the Palnis form a distinctive part of this administrative unit, being totally unlike the rest. To the North and East lie the Palni and Dindigul plains with red soil and patchwork cultivation. To the South is the Kambam Valley opening out to the plains of the Vaigai, walled in on the upper west side by the Cardamons, a valley green with the perennial waters of the river, though parts are red and dry, barren and stony even as parts of the Mysore Plateau. These plains are usually visible from the summits of the hills, though frequently obscured by heat haze or monsoon mists temporarily. To the West are the hills of Travancore, range upon range of irregular ridges and peaks.

The Palni Hills are so called from the name of a town situated to the north. The word is considered to be a corruption of "panri-malai," the Tamil form of the Sanscrit appellation "varāhagiri" or pig-hills, from the wild pig which used to roam the forests. The greatest length of the hills is 40 miles, the maximum breadth only 25 miles. They possess a characteristic which marks them out from the Nilgiris in that seldom does one climb completely away from a view of the surrounding plains. From the top of one of the hills near Ootacamund on the Nilgiris there is a satisfying view across the Downs towards the Kundahs, but the Palnis provide the finer views looking outwards across the foothills, though it must be admitted that even the Palnis cannot equal the Kodenāād view already described.

Except for a narrow strip along the Vaigai Valley the whole of the Madura District is gneissic in geological composition. It has not yet been examined in adequate detail except in the south. The Palnis consist entirely of charnockite.

A gap, called Neutral Saddle, running north and south, divides the Palnis into two distinct parts, the Upper and the Lower Palnis. The latter are a confused jumble of peaks ranging from 3000 to 5000 feet, with steep wooded valleys of considerable beauty separating one height from another. There are a few small villages at the foot of some of these ravines, the largest being Pannaikādu with a population of about 3000. The woodlands in the Lower Palnis have been much cut for cultivation, particularly for the plantations of coffee and plantains. But when the soil is good on the slopes, several pine sholas of large extent still survive, including red cedars. There are many species of tropical and subtropical trees remaining, including the useful food trees, tamarind, jāk, mango, orange, lime, citron, and sago palm. In the cardamon areas the forest trees are left for shade. In the depths of the valleys the soil is a dark rich loam and by means of a careful system of dry cultivation dry cereals are grown, and where adequate water is available paddy also. Further sources of profit are spices, particularly cardamons,

also ginger and turmeric. The cultivators are not hill men but immigrants from the plains, who have adapted themselves slowly to their new environment, and now live in almost complete accord with the conditions controlling their lives.

Our interest is more in the Upper Palnis to the West, which vary from 6000 to 8000 feet, the Vembadi Peak rising to 8218 feet. The Upper Palnis are less dissected than the lower area, with fewer ravines and valleys and less forest. The climate is necessarily colder and the soil more barren, so that cultivation is limited; the grass which covers considerable areas of rolling downs is of a coarser type than that of the Wenlock Downs of the Nilgiris, though a similar feature is the number of sholas situated in the more sheltered valleys. The soil is usually a thin layer of black peaty earth, sometimes very shallow, and the substratum of yellow clay is often absent, the underlying rock outcrop being very near the surface. In the hollows the soil is deeper and richer but often water-logged and mossy. The general fall of the range is to the north, and a noticeable feature is that the south side often ends abruptly in steep sheer precipices, whereas the north side slopes fairly gradually down to the Palni plains. Every approach shows wild and bold scenery, and most of the tracks are rocky and precipitous. It is not difficult to imagine the time, aeons ago, when the prehistoric seas beat relentlessly against these spectacular cliffs. Ages have gone by, but the Palnis can easily be visualised as a stormy island set in the ocean of Lemuria of the Pre-Dravidian legends.

Old routes from the Palni plains to the summit utilised the two chief valleys penetrating the northern slopes, towards the settlements of Vilpatti and Pūmbārai. The main approach now is from the other side from the town of Periyakulam, 5 miles from the foot at a height of 932 feet. There is no railway up the Palnis. The traveller can come as far as Kodai Road Station and from there by car or bus up the Ghat road. It is only since the last war that the road surface has been improved sufficiently for mechanical transport. Previously visitors had to be carried up in sedan-chairs by coolies. Several other roads have been attempted. The Law's Ghat Road was commenced and ran from the hill station of Kodaikānal 11 miles to Neutral Saddle. For many years it was unfinished, and then was continued as the Āttūr Ghat to Āttūr in the Dindigul District. This has been largely abandoned and the Law's Ghat Road continued down to Ganguvarapathi. The Periyakulam Ghat remains the most serviceable of routes and the road is kept under constant repair.

The torrents of the Pūmbārai and Vilpatti valleys previously mentioned are two of the six tributaries of the Shanmuganadi (six-faced stream) which eventually flows into the Amarāvati and thence to the great Cauvery. To the south the streams are tributaries of the Vaigai together with the torrents of the Varushanad and Ardipatti Hills. The names of some of these rivers sound confusing to our ears, but broken up into their components (Varāhanadi means boar river, Mangalar or Vattilagundu means yellow river) the words become pregnant with meaning to those who understand Tamil. The Pambar is a far more fascinating rivulet than its name suggests, cascading recklessly down rocky gullies, or seemingly lingering awhile in deep shadowed pools.

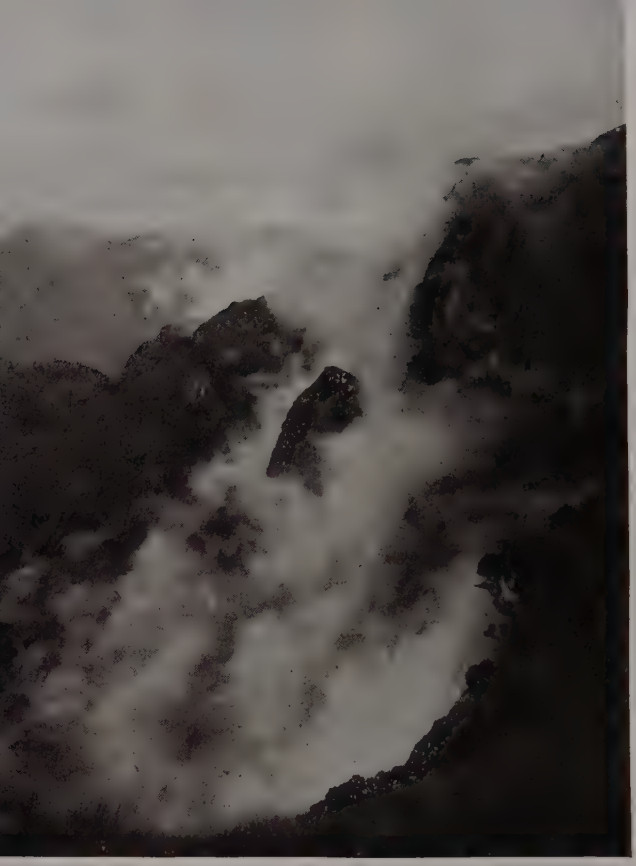
Kodaikānal, the hill station of the Palnis, claims to have a climate superior to that of any hill station in India, indeed the climate is said to be one of the three best climates in the world. It is cool and bracing, and as the soil is absorbent the atmosphere is less damp than might be expected from the annual rainfall of more that 80 in. The actual figures for the station for the four quarters of the year are: January to March, 6·43 in.; April to May, 11·44 in.; July to September, 21·00 in.; October to December, 26·50 in.; which shows clearly that the N.E. monsoon is the more active rain bringer, much of the summer rain being in the form of convectional storms. Fortunately for the May and June visitor, these storms tend to be short and sharp and frequently occur in the middle afternoon following clear bright mornings, passing away soon enough to leave the evenings fresh and dry. In the winter months, particularly December to February when the air is dry and the nights often clear and frosty, the climate is very bracing. The shade temperature ranges from 42° F. to 76° F., though

such averages are deceptive, giving no indication of the winter frosts or the midday heat of the summer. Compared with Ootacamund we can readily see that Kodaikānal and its environs lack the three arid months of the Nilgiris, so that vegetation does not wither. This combined with the clearer atmosphere, less damp, and milder temperature makes the Palnis more attractive to the European.

Much of the area is cartographically called Reserved Forest, but one is doomed to disappointment if this map symbol is interpreted too literally. The deciduous forests of the slopes have little real timber left, due to indiscriminate felling and burning. Only in the north-east, between the Ayakkudi and Kannavadi estates where the soil is unusually good, and to the north-west in the Maniyapatti Valley where the inaccessible and feverish forest tract slopes down from the great Kukal shola to the Amarāvati River, is the forest of any value. Some areas are recovering from earlier destruction, such as the Tambirakānal Shola on the prominent Aggamalai spur west of Periyakulam town. These woods only hint at the vastness and depth of the primeval forests. The evergreen trees on the plateau are more valuable, but these are scanty on the Upper Palnis. West of the Lower Palnis, where the ascent to this upper plateau begins, the soil gradually deteriorates and becomes shallower, and the heavier forests disappear, being replaced by the open grassy downs with stunted trees and shrubs, and sholas in the moister and more protected valleys. Only one-quarter of the 52 square miles consists of sholas. Nearly all these woodland areas are included in the Upper Palni Reserves. Tiger Shola near Neutral Saddle, Perumal Shola on either side of Law's Ghat, Vanjankānal farther down the same road, Kodaikānal, Gundam (2 miles to the west of Kodaikānal), Doctor's Delight (4 miles north), and the great Kukal Shola (15 miles west) all provide places of interest for walks. They are chiefly valuable as protection of sources of useful streams, rather than for their stores of timber. In earlier years damage by fire was often frequent and great, but methods of preservation include fireguards and cleared paths called fire-lines criss-crossing the reserves. The unwary traveller often mistakes one of these for the track he should be following, or thinks he sees a short cut, though the straightness should be sufficient warning, and suddenly finds himself heading for the edge of granite cliffs down which even the most dauntless of the hill guides would scarcely have gone. There is nothing for it but to retrace his steps down the apparently endless fire-line to rejoin the coolie road and catch up maybe with his companions away ahead. For one of the joys of a holiday in the Palnis is the ease with which one can leave the town completely behind and step out into the wilds for a few days' trek. From the hill-station of Kodaikānal there are several routes which can be followed, and the eager walkers provided with coolies to carry the minimum baggage and food baskets, can move from one Forest Rest Hut to another around or across the Palni circuit, " over the hills and far away," for several days at a stretch. The undulating plateau on the top of the Palnis from the outskirts of Kodaikānal to the Travancore frontier in the west and the Bodinayakkanur limits in the south, called in a lordly fashion the Amthill Downs, and recently reserved under the Forest Act, forms an ideal area for such a hike, and every few miles brings fresh beauty to the tired eyes of the plains' dweller: be it the gentleness of the inner folds with alternating light and shade, or the stark fascination of the " edge of the world " where one looks down the majestic steeps to the ocean of field and tank and hamlet below. Every hour of the day has its own interest and charm, and the changing seasons bring fresh delights to an ever-changing scene. In May and June the monsoon clouds pile high in the west and south, and an intricate pattern of interlacing purples and greys passes over the downlands. In early afternoon heat clouds arise from the plains and pour over the edge of the hills in wispy puffs and shimmering veils, or when the monsoon breaks these mists turn to drifting rain clouds, billowing across in more massive formation, quickly changing mere dampness, albeit warm and sticky, to driving, cooling and genuine wetness. Fog, too—or rather heavy mists, for there is no industrial smoke to concentrate it—occasionally blankets the hills and the outside world seems even farther away. But this is only momentary. Soon the tropic

EDGE OF THE
PALNI HILLS

VIEW FROM ONE TREE HILL NEAR OOTACAMUND, NILGIRIS



PALNI HILLS

NEAR KOTAGIRI

sun breaks through, and there is Bodinayakkanur or Periyakulam vivid and alive on the sunbaked steaming plains below.

In addition to the natural woodlands there are plantations of blue gum and Australian blackwood in the vicinity of Kodaikānal, started as far back as 1870 as a source of firewood to save the sholas. Growth has been variable. Some of the sites do not appear to be suitable and the trees have made indifferent progress. The Gundam shola plantation, started somewhat later, has prospered and is now extensive. There is something peculiarly attractive about an Indian hill landscape diversified with the Australian gums. Especially in the short tropical twilight when the evening shadows lengthen with such rapidity, and the clear skies glow with that transparent gold and green associated with the westering sun, the gums give a fantastic finish to the contours of the hills, and, silhouetted against the pale sky, often have a strangely Japanese effect.

We have less knowledge of the prehistory of the Palnis than of the Nilgiris, and they scarcely figure in Indian history. Research has been inadequate in all the hill areas of South India, and there are insufficient data available for any comprehensive account to be undertaken. Prehistoric remains are numerous, particularly in the wild country to the west of Kodaikānal where several kistvaens and dolmens have been superficially examined.

Several apparently indigenous communities are all immigrants from the plains, chiefly Paliyans, a wild unsettled folk, found also on the Annamalais and the West Ghats in the Tinnevelly District. There are large groups of cultivators growing chiefly rice, and the skill with which the mountain streams are diverted, so as to irrigate successions of narrow terraces[1] excavated on the slopes of the hills is a strong testimony to the ingenuity and industry of the people. Here are no indolent "children of the sun," lazing around while the tropical effusion of life makes the earning of a livelihood effortless and unfatiguing. This is South India, not the South Sea Islands. The Dravidian peoples, together with all the tribes now associated with them in this vast agglomeration of races, are among the world's most hardworking and painstaking folk. Hence their employment throughout the plantation zone of Asia, in the armies of the Empire, and in all India. Their tenacity and patience is nowhere more vividly seen than in the terraced agricultural units of the hills which rival the oft-praised efforts of the Chinese and Japanese. In the Pūmbārai Valley, for instance, is a remarkable example of such work. Here the cultivators have cut out terraces from the almost parallel sides of the valley, and climbed up amid woods and broken ground below and around precipitous crags until the whole valley is one huge allotment. Coarse hill paddy, taking eight to ten months to ripen, coffee, poor varieties of wheat and barley, with garlic the chief export, and vegetables for sale in Kodaikānal, are all grown with difficulty, but grown in abundance nevertheless. The perennial hill torrents are usually dammed at the top of the slope and led along channels to irrigate the series of narrow terraces intricately built up, passing through carefully arranged manure dumps so that the fields are regularly revitalised.

Kodaikānal, frequently referred to, literally means a forest of creepers, and the hanging wood from which it takes its name is still there on the inner slope of the southern rim of an irregular basin on the edge of the precipitous south side of the hills. But the town straggles beyond the amphitheatre, which only measures $1\frac{1}{4}$ by 1 mile. Shut in on the north by high and steep sides and cut off on the west by a ridge, this shallow basin is less steep to the southern edge, whence there are glorious views of the plains, and falls rapidly to the east in the direction of the Lower Palnis. This orientation is dominated by the steep square-topped peak of Perumāl (7326), a disconcerting hill to climb ; it looks so easy and near, until one realises with dismay that its ascent means first of all a descent halfway down the Ghat, there being no approach from the higher levels. The average height of the settlement is 7000 feet, but the Indian town is considerably lower than the main residential area, and many bungalows have been built out beyond the hollow on the western ridge and on the roads leading west and north. Once a swamp, this basin was first drained in 1863 by Levinge, and the stream dammed to

form an irregular lake 3 miles in circumference, shining with iridescent gleams in its encircling setting. The meteorological statistics previously given are taken from the Government Observatory situated high up overlooking "Kodai," a favourite goal for excursions.

There are no other European settlements on the Palnis, only isolated houses on estates. In 1861-62 an area to the west known as Fort Hamilton was examined with a view to establishing a military cantonment and sanatorium there, comparable with the one at Wellington on the Nilgiris. But the idea was abandoned, partly because of the difficulty of approach both directly from the plains and from the Law's Ghat route, and partly because of the lack of adequate supplies of fresh water. This hollow was surveyed and the former existence of a great lake was verified. Traces of the waterline are still clearly visible. It must have been about 5 miles long, $\frac{1}{4}$-$\frac{3}{4}$ of a mile wide, and 30-70 feet deep. The side of a hill must have slipped down into the valley which drained north into the Amarāvati, and dammed the stream, which eventually cut its way through the natural embankment and emptied the lake. The dam was almost 200 yards long, the break was over 100 yards in width and 90 feet deep. The lake since has been artificially dammed and supplies Periyakulam on the plains with water and electric light.

Fort Hamilton is on the farthest lap of a circular drive round the western environs of Kodaikānal, about $\frac{3}{4}$-hour by car; and it is here that the hikers break off from the ordinary road and cut across the wild countryside by coolie track. The first Forest Rest Hut (2 bare rooms and a kitchen off) on the usual route is at Mariyan Shola, and the track thence keeps fairly near to the edge of the hills, affording continuous views of the grandest scenery. The geomorphologist notices with interest the steepness of the cliffs, the sudden breaks, the knife edges of ridges, and compares them with the roundness of the curves to the inland, as it were. The rates of erosion vary on the circumference of the Palnis according to the angle of approach of the prevailing winds. The southern aspect in the direct path of the S.W. monsoon, a fiercer, more forceful wind than the N.E. monsoon, shows much faster erosion than the other slopes. This wind brings very heavy rain when the monsoon actually breaks and the streams and rivers are flooding torrents. Before the "break," when the pressure is accumulating and the rain is still withheld, the winds are often laden with dust and grit and act as powerful dessicating forces. The river beds are eroded at a great rate, and the rivers cut back into their watershed, hence the numerous precipitous edges and the characteristic cliff profile. Much of the jaggedness is due to exfoliation, the splitting of the rocks by the diurnal changes of temperature, more marked on the circumference than in the interior of the hills. Many of the valleys have coombe-like heads, but these must be accounted for by other means than glaciers. They are not cirques and there is no evidence of glacial activity; on the contrary, the interlocking spurs of river erosion are very conspicuous. Some streams show signs of rejuvenation, and suggest various stages of uplift. Others have very marked meanders in their mountain valleys, and the headstreams are often marshy, their progress having been slowed up perhaps by changes in the gradient due to tilting. Extensive surface disintegration of rock is apparent, and sub-surface alteration is excessive in some places; by that is meant the chemical changes taking place in the subsoil, due to the peaty nature of the topsoil which is sometimes deep. The dividing line between the soil and subsoil is often clearly marked, and the subsoil may be of much greater depth than the loam above. Many other points of geographical interest are met with.

On the way from Mariyan Shola to the next hut at Vanderavu on the western edge of the plateau, the watershed is seen to be very near the cliff edge, suggesting quick cutting back and very marked erosion on the south side, exposed as it is to the S.W. monsoon. There is frequent undercutting of the cliff, and the profile is very characteristic. Vanderavu, one of the highest peaks, provides a most satisfying climax to a day's walk of some 17 miles. A fire is ready, if the coolies by coming a shorter but steeper way have reached the forest hut first. And after

a welcome rest and meal one is eager to climb up the ridge below which the hut, sheltered by pines, is situated, and look out across the intervening valleys and foothills to the High Range of Travancore, and the flat-topped table mountain which is such a conspicuous feature, part of an ancient surface once continuous over much of South India. There is always something thrilling in actually standing on a boundary between two states. The country beyond becomes foreign and exciting. Below the ridge is Munaar, a plantation centre, and the valley and slopes appear rich and fertile by contrast with the barer grassy sides of the higher hills. The quick-eyed can pick out the rope railway by which heavy stores are pulled up from the plains to Munaar, several thousand feet up, though so much lower than where the watcher stands.

Continuing from Vanderavu the route is either to Kukal, through the leech forests, stopping to explore ancient caves with possible traces of prehistoric man and animal, and then completing the circuit to Kodaikānal via Kavunji ; or else direct to Kavunji, a long drop down and an even longer pull up. This is a village perched halfway up a valley, on and around a hillock in the valley floor, and surrounded on all sides by the maze of terraces for hill rice. One of the saddest of sights is met with, however, in the spoiling of the fertility of so much of the land by ruthless cutting down of forests and consequent erosion of the soil by rain and wind, when it lacks the binding roots of grass and tree and the protection afforded by such growth. Whole stretches of hillside have become muddy reddish scars, masses of jumbled earth and stones with nothing to secure it from further erosion. The people themselves are aware of this tragedy, but once the sholas are spoiled they can do little to correct the damage and repair the depreciation without the expenditure of far more capital than they have available. Here is yet another " Highland problem."

Geomorphologically the significant fact about the Palnis is the apparent level of peneplanation. So far one can only surmise the possible connection between them and the adjacent hills, particularly to the south and west. The flat level of the Table Mountain in the Travancore High Range may be another remnant of a peneplain once connected with the highest parts of the Palnis, at a level of at least 8000 odd feet, originally probably much more. A second partial peneplanation may be discovered at about 7000 feet and a third at about 5000 feet. A fourth period of levelling is possibly in progress now, but it is likely that there have been interrupting uplifts breaking the cycle of erosion. These are all matters of conjecture at the moment. Very little research has been done in South India in these subjects. The only geographer who has attempted any such study is Mr. B. M. Thirunaranan, late of Madras University and now of the Madras Educational Service, but war has now interrupted his work. A good deal of valuable work has been done in Ceylon on the origin and development of the land forms, but this has not yet been correlated with the South India data.

The hill pastures of the Palnis, as those of the Nilgiris, are suitable for cattle, the grass being too long and damp for sheep. There are a few small herds, but the pasture would support more. Certain enclosed valleys, the grassy moorland towering around, the trough ill-drained and marshy, are reminiscent of some of the isolated mountain valleys of the Highlands of Scotland, and the cattle, brown and shaggy, complete this realisation.

But it would not do for the reader to think that the chief beauty of these South Indian hills is in their partial similarity to selected areas in Britain. They have a distinctive loveliness all their own, so much so that having visited them once only one has the urge to go again and again, finding each time new wonders and strange delights.

[1] *See* illustration facing p. 86, Vol. 59.

NOTES AND REFERENCES

EUROPE

THE NATURAL RESOURCES OF GREAT BRITAIN. In the *Journal of the Royal Society of Arts* (1944, 92 (*4674*) : 538-559) are recorded the Cantor Lectures, the first and second being by E. B. Bailey on Minerals and on Underground Waters, and the third by Sir William Halcrow on Hydro-Electric Power.

MITTELDEUTSCHLAND : THE MIDDLE ELBE BASIN AS A GEOGRAPHICAL UNIT. By R. E. Dickinson. *Geographical Journal*, 1944, 103 (*5*) : 211-225. 3 maps.

RESOURCES OF ALBANIA. During the Italian occupation of Albania statistical information about mineral production was withheld from the public. A report by Francesco Benini (1939) deals with haematite and chromium near Lake Ochrida, the copper deposits in northern Albania, coal and asbestos deposits in the Korcha district, the oil fields of Kuchova and Pathos, agriculture, water power, and other resources. This report has been summarised by T. Zavalani in *Geography* (1944, 29 (*3*) : 80-85), and developments during German control are briefly mentioned.

POLAR REGIONS

TRANS-ARCTIC AVIATION. The potentialities of linking the northern continents by air routes traversing the Arctic Basin, adumbrated by Sir Sefton Brancker, Vilhjalmur Stefansson, and others, are discussed by Elmer Plischke, U.S.N.R., in *Economic Geography* (1943, 19 (*3*) : 283-291). Trans-Arctic and other flying distances are compared, and an account is given of hazards attending polar flying and of their elimination. Not the least important section of the article is that dealing with the juridical status of Arctic territories in relation to the development of post-war air transport.

NOURISHMENT OF THE GREENLAND CONTINENTAL GLACIER. At the present time the Greenland glacier is shrinking, so that a study of the tracks of cyclones arriving at the coast during recent years is of considerable interest. Meteorological records and interpretations made by numerous observers are critically reviewed by W. H. Hobbs (*Journal of Geology*, 1944, 52 (*2*) : 73-96. 13 figs.). The cyclones are halted at the west coast and deflected up Davis Strait, and they only reach the interior of southern Greenland to about one hundred miles in summer, causing liquidation of the glacier. The latter is nourished in the region of the glacial anticyclone of the interior, the snow drifting centrifugally to the glacier margins and being melted there in the summer. Bibliographical references are provided.

HUNTING IMPLEMENTS AND METHODS OF THE PRESENT-DAY ESKIMOS OF NORTH-WEST HUDSON BAY, MELVILLE PENINSULA, AND SOUTH-WEST BAFFIN ISLAND. By T. H. Manning. *Geographical Journal*, 1944, 103 (*4*) : 137-152 ; 1 map.

SOUTH-EAST VICTORIA ISLAND AND THE QUEEN MAUD GULF. One of the last areas of the Canadian Arctic to be opened up is the central part. In the Queen Maud Gulf, between Victoria Island, King William Island, and the mainland, navigation is hazardous owing to ice, shoal water, reefs, and fog, but some seven hundred Eskimos live in the surrounding district. The conditions and settlements are described by Captain the Rev. H. R. Rokeby-Thomas (*Geographical Journal*, 103 (*5*) : 203-209. 2 sketch maps. 10 photographs), who suggests that possibly some of the members of the Franklin expedition may have tried, in vain, the way out westward from Victoria Strait. Minimum daily temperatures recorded by the author at Cambridge Bay (69° 01′ N., 105° 15′ W.) during 1934-1935 ranged between −63° F. on January 3 and +57° on August 4.

THE VOYAGE OF THE *ST. ROCH* THROUGH THE NORTH-WEST PASSAGE, *1940-1942*. The North-West Passage was completed by Captain Roald Amundsen in the *Gjöa* for the first time, going from east to west (*S.G.M.*, 1907, 23 (*5*) : 265). The first voyage in the reverse direction was made by the eighty-ton R.C.M.P. patrol vessel *St. Roch*, commanded by Sergeant Henry A. Larsen. The expedition left Vancouver on June 21, 1940, and arrived at Sydney, Cape Breton Island, on October 8, 1942, after an extremely arduous voyage. A condensed account is printed in *The Polar Record* (1944, 4 (*27*) : 115-118). Master and crew, including Constable Chartrand, who died suddenly from a heart attack in February 1942, were awarded the Polar Medal.

THE OBSERVATIONS OF AMUNDSEN AND SCOTT AT THE SOUTH POLE. Full records of the astronomical observations by the Norwegians in December 1911 and by the British in 1912, unfortunately, have not been published. From the incomplete results of observations at the Pole printed in Amundsen's book, and from the original observation book of Scott and Bowers, Mr. A. R. Hinks has been studying the data and has calculated the observations by the position line method. The main conclusion of the paper (*Geographical Journal*, 1944, 103 (*4*) : 160-180. 6 diagrams. 2 plates) is " that the observations of both parties were very much better than has ever before been represented, and deserve praise that has been long delayed."

REVIEWS OF BOOKS

EUROPE

Island Farm. By F. Fraser Darling. Demy 8vo. Pp. 223. Illustrated. London : George Bell and Sons Ltd., 1944. *Price* 15*s.*

A new book by Dr. Fraser Darling will always be welcome, and *Island Farm* is a fascinating autobiography of Dr. and Mrs. Fraser Darling's life in the remote island of Tanera in the Western Isles. Taking over this derelict farm, they have by faith and hard work transformed it into a self-supporting, comfortable establishment in the remarkably short time of three and a half years.

A feeling of happiness and enthusiasm runs through the whole book, and this feeling is shown by all who visit the island and who willingly help in the reconstruction. Much information is given about the wild life of the isles, as could be expected from such an excellent observer. There are interesting chapters on wild life on Sule Sgeir and North Rona, and the book is illustrated by many beautiful representative photographs.

The author has much information on the technique required for farmers and crofters in these West Highland areas, and shows how difficulties may be overcome by the growing of suitable vegetable and other crops which are adaptable to the soil and climate. The many readers who have read *Island Years* with so much delight will find *Island Farm* equally fascinating. A. M. S.

A History of the City of York. By Charles B. Knight. Royal 8vo. Pp. ix+774. 3 plans. York : The Herald Printing Works, 1944. *Price* 42*s.*

The Romans were not always happy in their choice of sites. Their settlements in so many cases served their immediate purpose and then disintegrated with changing circumstances. In building Eboracum, however, they built better than they knew, for what began as a northern outpost of Empire—Mr. Knight explodes the myth of a pre-Roman settlement between the Ouse and the Fosse—developed in the Middle Ages into the greatest ecclesiastical and commercial centre in the north of England, thanks to its nodal position.

York's supremacy began to be challenged as early as Tudor times, and the city was finally eclipsed by the industrial revolution. This has had the fortunate effect of preserving much of historic York which otherwise would have been submerged ; even the streets of the present day reflect the original Roman pattern.

Mr. Knight's book, although it says little about the causes of the longevity of York, is an outstanding achievement as a record of its history. In an introduction, Sir John Marriott suggests that " Chronicles of York " would be a more apt title than " History of York," but however this may be, Mr. Knight's method makes the book most interesting reading, for the matter is arranged both chronologically and by subject, each chapter, covering a definite period, being divided into sections dealing with different aspects—Minster, other Religious Foundations, Civic Administration, Gilds, City Walls, Castle, etc.—so that by the help of the very complete index it is easy to follow the growth or decay of any particular institution.

In addition to the index there are a good bibliography, a detailed chronological summary, and three excellent plans. S. C. F.

British Survey Handbooks. 1. *Belgium.* Edited by John Eppstein. Fcap 8vo. Pp. xiv+111. Map. Cambridge : University Press, 1944. *Price* 3*s.*

This is the first of a series of small books published by the Cambridge University Press in association with the British Society for International Understanding, with the object of giving information on the essential background, characteristics of the people, and the effects of the war in each country. The place of Belgium in Europe, political history, the life of the people, and the reactions of the government and people to the German occupation are skilfully outlined ; there is also a clear summary of conditions in Luxembourg. Racial, religious, and political complexities are unravelled, and the information is up to date and adequately presented.

A knowledge of the contents of this book is indispensable to all interested in Belgian affairs, particularly to anybody whose duties necessitate a personal visit to the country. Each number of the series is indexed and provided with a suitable map. J. H. K.

The Dutch Nation : An Historical Study. By G. J. Renier. Demy 8vo. Pp. 272. 1 map. London : George Allen and Unwin Ltd. for The Netherlands Government Information Bureau, 1944. *Price* 15*s.*

A good historian, says Renier, should bring to his task the " higher impartiality of imaginative insight." Here we have the author conscientiously applying that quality, along with utmost care for truth, to a most complicated theme : quite often, when he presents one view of a person or a problem, he indicates where you may find the other view most ably presented. He says, " in the Dutch Republic no situation was ever clear-cut, no tendency straight, no party single-minded," and throughout the work there are constant warnings against over-simplification. That is a fault inevitable in any brief notice of such a book. It is essentially a study of the see-saw between two parties striving during two hundred and fifty years for the mastery. There is the party of the States, identified with the " regent " caste, the representatives of the urban upper middle class, chosen originally from the " richest, the most honourable, notable and peaceful," a commonwealth

of merchants, a party, we should say, of conservative republican federalists. Opposed to them is the party of the fractional, often elusive, but none the less real sovereignty of the Princes of Orange, embodying the conception of centralised power. The period covered is from the Revolt of the Netherlands to the foundation, after the Napoleonic occupation, of the Kingdom of the Netherlands and the separation in 1830 of Belgium and Holland. As we should expect, the seventeenth century fills a very large space in the picture. Sometimes there was a Stadhouder—the term means simply "viceroy," to begin with, the viceroy of the King of Spain—sometimes there was none, but the dictatorship of the upper middle class was real and permanent. Neither Stadhouder nor States were democratic, and in reading Dutch history, as well as the history of other nations, the word "people" has to be understood with many limitations. Religious, social, and economic factors, and Dutch, French, and British foreign relations confuse the internal political issue.

Numerous portraits skilfully drawn and presented, some at full length, some in smaller compass, illustrate effectively particular aspects of the life of the times and lighten the narrative.

As for the character of the Dutch people, all the world has heard of their love of cleanliness and truth. They would appear to be a sensible, matter-of-fact sort of folk, careful with their money, tenacious, class-conscious, and bearing the indelible stamp of the ruthless and purposeful efficiency of Calvinism. Like the Scots, Dutch laymen were fond of a theological argument. "The warp of their life is economics, the woof is religion." They arrived earlier than others at a fair measure of tolerance, and a century before their neighbours they put an end to the cruel superstition that led to witch-burning.

The book is not, on the whole, an easy one to read, but it is interesting from beginning to end and trustworthy. The author turns to good account the rich contemporary literature in pamphlet form, and references to that and other sources are frequent in the footnotes. One reader would have appreciated the addition of a couple of pages devoted to a summary bibliography and a chronological table. A useful index and sketch-map are provided. R. T. C.

ASIA

China and Britain. By Sir John T. Pratt. Demy 8vo. Pp. 128. 11 plates. 66 other illustrations. London: William Collins, Sons and Co. Ltd., 1944. *Price* 8*s.* 6*d.*

China and Britain appears at an opportune time. It is a fascinating book written by one who had sojourned long in the land of Britain's great Eastern ally. It is the fruit of much research and of a sympathetic and understanding knowledge of the Chinese people.

Many people who have become interested in China possess only a very superficial knowledge of its history, its philosophy, or its art. Though the book is, for the most part, a concise and eminently readable history of the Chinese nation—its origin, its growth, its outstanding men, its religion, its arts and the life of the people—the author, with deft touches, presents the points which have linked China with Britain.

The author says, "It might help us to realise the debt we owe to China if we tried to imagine a world which lacked all the things that China has invented and discovered. What would our gardens look like if the plants that originally came from China were suddenly to disappear? How should we bear the wrongs and *ennui* of life without tea, how drab our raiment would be without silk, and to what low levels of mere brute existence should we be reduced without porcelain or lacquer, or if we had never seen the beautiful carvings in glass, jade, wood, and other precious substances—the whole host of minor arts in which the Chinese excel." He proceeds to enlarge on China's gifts to the West and to the world, and to show how benefits have been reciprocal between China and Britain.

The final chapters deal with Modern China. After years of humiliation and ineffectiveness, hope was born anew when the Nationalist Movement was set on foot. It was uphill work for a long time, with many ups and downs; but the fight against aggression under an exceptionally fine leader has brought the nation together and has called forth the genius and the gifts inherent in the Chinese people. To read this book is a liberal education in things Chinese.

Many beautiful and unusual illustrations add greatly to the attractiveness and value of the book. A. C.

AMERICA

Canadian-American Relations, 1875-1911. By Charles Callan Tansill. Med. 8vo. Pp. xviii+507. 3 sketch maps. New Haven: Yale University Press; Toronto: The Ryerson Press; London: Humphrey Milford, Oxford University Press, 1943. *Price* $3.50 or 23*s.* 6*d.*

This volume is one of a series of studies prepared under the direction of the Carnegie Endowment for International Peace and is written by the Professor of American Diplomatic History in Fordham University. There are four main topics:—

(1) The dispute about the fisheries off the mouth of the St. Lawrence in which the New Englanders had a vital interest. (2) The Alaskan Boundary dispute, especially in regard to the neighbourhood of the Portland Canal. This depended on the interpretation of a treaty between Britain and Russia whose rights the U.S.A. had inherited, and was complicated by the inaccuracy of the existing maps and the guesswork of earlier explorers. (3) The fur seal fisheries in the Bering Sea in which the U.S.A., formerly the champion of the freedom of the seas but now owners of the breeding grounds on Pribilov and other islands, wished to prohibit Canadian sealers from the

pelagic killings which, they maintained, threatened the extinction of the species. (4) The question of Reciprocity or Commercial Union, with the ever-present fear that geographical proximity would prove stronger than sentimental ties and lead to the absorption of Canada by the U.S.A. British negotiators with their world and empire outlook had a difficult task to maintain the much-desired friendship with the U.S.A. and at the same time to satisfy Canada, rapidly rising to nationhood, that her interests were not being sacrificed.

The book is written in an easy style, despite the intricacy of the long-drawn negotiations described. There is an excellent index, but a few more maps would have been welcome. D. R.

AUSTRALASIA

The Geographical Basis of Government, Specially Applied to New South Wales. By J. Macdonald Holmes. 9½×7 inches. Pp. 168. 34 figs. Sydney: Angus and Robertson Ltd., 1944. *Price* 12*s.* 6*d.*

The main argument of the Professor of Geography in Sydney University is concerned with state and town planning and is a looking forward to the future of Australia. It is, perhaps, no part of the geographer's task to deal with events to come, but Dr. Holmes's account of things as they are is illuminating.

His historical resumé of the formation of inter-state boundaries since 1786 is a useful summary, though he offers no explanation of the reconstitution of the Northern Territory in 1931. Scientific boundaries have been fully discussed by several writers, and Dr. Holmes's map of the Murray River drives home the argument against large rivers as lines of division in populated areas. Nor is he enamoured of lines of longitude and latitude as dividing bounds between states, though these do not seem to interfere with national progress in the United States.

In town-planning he seeks to bring Australia into line with, for example, the Homeland, where much re-planning is being talked of. Here, again, his diagrams are well chosen and informative. His schemes for the regional divisions of the Australian states trench on local government business, as is shown by the official map of New South Wales. But he is on safe ground when he points out the absence of state surveys and maps even in the settled portion of Australia, and that New South Wales has no combined or correlated environmental or resources survey.

For the geographer he has provided a most valuable section under the title "Source Material," numerous sketch-maps and diagrams, though the maps are of ranging scales and fig. 16 does not show the "even spread of towns with a population of 5000 to 10,000 or more (p. 34); the railway diagrams (figs. 17 and 18) are not easy to follow, while figs. 13 and 14 (which should face one another) are separated from fig. 21, and are unsupported by a rainfall map.

Professor Macdonald Holmes acts as a specialist consultant on Australia's growing-pains, and deserves the admiration and thanks of geographers for the detailed thoroughness with which he has studied the symptoms, diagnosed the trouble, and suggested the remedies. J. H. B.

GEOMORPHOLOGY

Geomorphology—An Introduction to the Study of Landforms. By C. A. Cotton. Third Edition, revised and enlarged. Pp. 505. 473 figs. Christchurch, N.Z.: Whitcombe and Tombs Ltd., 1942. *Price* 25*s.*

Geomorphology, the study of landforms, as Professor Cotton explains in his preface to this edition, may be regarded as the geological aspect of geography or, alternatively, as the geographical aspect of geology. Books on geomorphology have been rather frequent of recent years, but Professor Cotton's may claim priority, as this work is a new and revised edition of a volume published, under the title *Geomorphology of New Zealand, Part I: Systematic,* as early as 1922.

The plan of the book follows familiar lines. It begins with processes of weathering, erosion and deposition, and goes on to discuss the work of rivers, wind, glaciers, volcanoes, and the sea, always with special reference to the landforms that are produced and their evolution. In the main, the author follows the descriptive explanatory method of W. M. Davis, that great master of this particular study; nevertheless the work is full of touches which reveal the original point of view of the author. As the book derives from New Zealand, it is natural to find that Professor Cotton has drawn much of his illustrative material from that country. There are also many well-drawn original diagrams which help out the clearly written text. By the way, some of the photographs have not reproduced very well.

It is admitted that the work is not cast in the form of a text-book, but it could easily be used as such under a careful teacher. It will appeal to geologists and geographers, and also to nature lovers who have an eye for scenery and wish to understand the principles that underlie the evolution of the landscape. G. W. T.

Principles of Physical Geology. By Arthur Holmes, D.Sc., F.R.S. Pp. xii+532. 95 plates. 262 text illustrations. Edinburgh and London: Thomas Nelson and Sons Ltd., 1944. *Price* 30*s.*

The aim of this fine work is to provide a thoroughly up-to-date account of physical geology, which subject has undergone so remarkable a development within this century. No writer is more competent than Professor Holmes to carry through this heavy task successfully. The newer facts and theories on the subject are profuse in their number and complicated in their details; they have been set out in this work on an elegant plan and with great literary skill.

The book is divided into three parts, but the chapters are numbered consecutively throughout, as they should be. Part I (Introduction) takes the form of a general conspectus of geological science. It includes chapters on Shape and Surface Relief of the Earth, in which the conception of isostasy is early and rightly introduced ; on the Changing Face of the Earth, a summary of epigene and hypogene processes—the main subject of the book ; Materials of the Earth's Crust—Minerals and Common Rocks ; Architectural Features of the Crust, including igneous intrusion ; and Rocks as the Pages of Earth History. This part occupies only 111 pages, and although the compression is thus severe, the writing remains clear and there are few points where misunderstanding might occur.

Part II (Chaps. VIII-XVI) deals with External Processes and their Effects. It contains chapters on Weathering and Soils ; Underground Waters ; River Action ; Development of River Systems ; Glaciers and Glaciation ; Wind Action and Deserts ; Work of the Sea and Coastal Scenery ; Life as a Rock Builder ; Life as a Fuel Maker—Coal and Oil. Much of this, of course, is familiar stuff, but it is freshened and invigorated by the incorporation of much new work and by newly drawn diagrams and previously unused photographs.

But it is in Part III (Internal Processes and their Effects, Chaps. XVII-XXI)—his own special subject—that Professor Holmes's genius for exposition finds its fullest expression. The subjects dealt with in successive chapters are Earthquakes ; Earth Movements—Mountain Building ; Earth Movements—Plateaus and Rift Valleys ; Volcanic Activity ; and Continental Drift. Here the most modern viewpoints are exhibited with remarkable candour. For example, it is shown that the formation of magma in and below the earth's crust is the most intractable problem of volcanology, for the known distribution of temperature in depth, even allowing for radioactive heat, nowhere ensures a fusion temperature for any of the crustal and subcrustal layers. A speculative attempt to overcome this *impasse* is made by postulating convection currents in the substratum of the globe, but the student is constantly reminded that this is pure hypothesis, however plausible—and Professor Holmes makes this speculation extremely plausible. The same convection currents are again drawn upon to supply the motive power for continental drift and for mountain building. In the latter case the hypothesis is strongly supported by Grigg's recent experiments with small-scale models.

In discussing the evolution of geosynclines Professor Holmes states that the first stage of development is accompanied by heavy sedimentation and *occasional* volcanic activity. The reviewer would suggest that the word " occasional " be replaced by " considerable " or " great," as the early formations of orogenic belts nearly always include vast masses of basic lavas (greenstones) with gabbro and serpentine intrusions (ophiolites), often converted into low-grade metamorphic rocks. It has been estimated that this geosynclinal volcanic activity in the Caledonian orogenic belt alone produced a volume of igneous material of the same order of size as the flood-basalt masses of epeirogenic regions.

The reviewer has searched in vain for serious errors of fact, and would only like to query the statements that 93 chemical elements are now known (p. 35) and that Pompeii had 300,000 inhabitants (p. 446).

The book is wonderfully well illustrated for a war-time publication with many new diagrams and unhackneyed photographs of geological phenomena. Suggestions for further reading are appended to each chapter, and the book is rounded off with a full index. It can be read by students not only for instruction but also for the sheer pleasure of reading—which cannot be said for most text-books.

G. W. T.

OCEANOGRAPHY

The Oceans : Their Physics, Chemistry and General Biology. By H. U. Sverdrup, Martin W. Johnson, and Richard H. Fleming. Demy 8vo. Pp. x+1087. 265 figs. 7 charts. Bibliography. New York : Prentice-Hall Inc., 1942. *Price* $10.00.

In this remarkably comprehensive, detailed, and up-to-date survey of oceanographical knowledge we welcome a product which, besides being the latest, can without any doubt be classed as now the leading text-book and compendium of information on a modern science, the pioneering efforts in which were laid little more than a century ago in Edinburgh and maintained there for decades to follow by the incumbents of the University Chair of Natural History—efforts which culminated in the world-renowned oceanographical exploratory expedition of H.M.S. *Challenger* (1872-1876), initiated and led by the late Professor Sir C. Wyville Thomson.

Subsequent progress in oceanography, as the volume under review testifies, has been both rapid and extensive, more especially within the last fifteen to twenty years, and owes much to the economic pressure of fishery problems and to the consequent researches sponsored in many countries by both private and public, including Government, bodies and institutions.

Oceanography is essentially a composite science. In its development it has drawn freely and widely upon various branches of physics, chemistry and biology, both theoretical and applied, besides contributing in no small measure to further developments in these sciences themselves, and that in a fundamental sense as well as by adding to the sum of human understanding of the natural phenomena associated with each. Progress in oceanographical science as a whole, therefore, so vast is its range, has tended increasingly to be canalised along a number of widely different lines more or less independently. There exist, for instance, in most maritime countries oceanographical institutions which, for practical purposes, governed by their aims, resources, and circumstances, geographical and other, confine themselves only to certain aspects of oceanographical investigation. Obviously, therefore, the need must arise from time to time to co-ordinate the results of the

numerous and extremely varied researches contributing to the advance of oceanography and scattered through a formidable variety of publications. This need, at a time and in circumstances which could scarcely be more opportune, the present volume amply fulfils.

Comprising over 1000 pages of text, thoroughly well illustrated by sketch, diagram, and map, any adequate review of the survey now presented to us of a subject of such comprehensive scope and complexity, and of such rapid and comparatively recent development, is almost out of the question in the limited space available. There are twenty chapters. To each save the first and the eleventh, which are of an introductory and of a general character respectively, is appended a bibliography which, while not exhaustive, is amply sufficient to enable the student to pursue his enquiry further according to his desire or need. Here are some of the main chapter headings indicating the compass of the book, but scarcely conveying a real conception of the wealth of material it contains :—

> The Physical Properties of Sea Water ; General Distribution of Temperature, Salinity and Density ; Theory of Distribution of Variables in the Sea ; The Chemistry of Sea Water ; The Dynamics of Ocean Currents ; Waves and Tides ; The Water Masses and Currents of the Oceans ; The Sea as a Biological Environment ; Organisms and the Composition of Sea Water ; Populations of the Sea ; Animals in Relation to Physical-Chemical Properties of the Environment ; Interrelations of Marine Organisms ; Organic Production in the Sea.

Interesting pointers in relation to the development of the science as a whole accrue also from a consideration of the balance of this highly significant volume. Whereas in the beginning of oceanographical research, and indeed for some considerable time, progress was mainly and largely on the biological side, more than half of the present book deals with the physical, including chemical, aspects of oceanography, a reflex to some extent of the growing appreciation in recent years of the enormous importance of the environmental issue in the study of marine life. Secondly, as an index of the rapid expansion of the science in the past two decades may be cited the fact that practically 90 per cent. of the bibliographical citations throughout the volume are dated from 1920 onwards.

Unquestionably, to the oceanographical student, be his enquiry, investigation, or problem concerning the sea itself, its composition, its movements, currents, or other properties, or be it in respect of the life within the sea, from the minutest organism, plant or animal, to the leviathan mammal whose decline in numbers would seem to point to its extinction almost within measurable time, the reviewer's advice is to consult first this joint work of Sverdrup, Johnson, and Fleming on which the authors are not only to be most warmly congratulated, but for which also they undoubtedly merit the thanks of all who are interested in the investigation and elucidation of marine phenomena.

J. B. T.

EDUCATIONAL

Higher Surveying. By Arthur Lovat Higgins. Demy 8vo. Pp. viii+463. 172 figs. London : Macmillan and Co. Ltd., 1944. *Price* 25*s*.

This book is written to provide students with a knowledge of surveying and geodesy, and the student who will master its contents will be well equipped for the requirements of a university degree in engineering and for colonial surveying.

When surveying a new country the first thing to do is to measure a base line, and this has to be done with the greatest accuracy. The French were the earliest to conduct an extensive survey, and they measured their base line with steel rods placed end to end on prepared platforms. The British measured their base line with compensation bars supported on platforms and placed with ends six inches apart, the distance between the ends being measured with a double microscope ; this was more accurate than the French method. The modern method is to use an invar tape, a metal which is least expansible by temperature. The next process is to cover the whole country with a network of triangles computed from the measured base line. The surveyor now fixes his position on the earth's surface by taking observations of the sun and stars to determine his latitude and longitude. The determination of latitude was easy, but longitude has been difficult, until now, with radio, it can be determined to the fraction of a second.

It is to instruct students in the various methods employed that this book is written. It is well printed and contains diagrams and photographs of instruments, such as invar tape, theodolites, and other instruments for surveying, for astronomical observations, and for ground and air survey by photography, and examples of the many methods used in mapping a new country. J. M.

GENERAL

The Statesman's Year-Book : Statistical and Historical Annual of the States of the World for the Year 1944. Edited by M. Epstein, M.A., Ph.D. Crown 8vo. Pp. xxxvii+1484. Map of Boundaries of Poland. London : Macmillan and Co. Ltd., 1944. *Price* 30*s*.

In these difficult times Dr. Epstein deserves the cordial thanks of the whole country for his compilation of so complete a mass of up-to-date information about our war-stricken world. To have collected and systematised such a body of knowledge is a marvellous achievement ; to possess such a handy compendium is a real pleasure to geographers. We are grateful for the clearness of the encyclopaedic information in the map of Poland which is in keeping with the exactness of the letterpress.

J. H. B.

BOOKS RECEIVED

The Land of Britain: The Report of the Land Utilisation Survey of Britain. Edited by L. Dudley Stamp, B.A., D.Sc.

Parts 9-12. *The Highlands of Scotland: Ross and Cromarty, The Hebrides, Argyll and Perthshire.* By S. W. E. Vince. *The Mainland of Inverness.* By C. J. Hunt. Pp. 423-669. 81 figs.

Part 13. *Buteshire.* By L. Dudley Stamp. Pp. 671-691. 12 figs.

London: Published for the Survey by Geographical Publications Ltd., 1944. *Price* 10*s.*

Heather-Track and High Road: A Book of Scottish Journeys. By Augustus Muir. Crown 8vo. Pp. 214. 18 illustrations. London: Methuen and Co. Ltd., 1944. *Price* 10*s.* 6*d.*

Handbook to the Isle of Skye. By Alexander Nicolson. Crown 8vo. Pp. 116. Illustrated. Glasgow: Archd. Sinclair, Celtic Press, n.d. *Price* 1*s.* 6*d.*

Guide to Islay. By L. Macneill Weir. Crown 8vo. Pp. 141. Illustrated. Glasgow: Archd. Sinclair, Celtic Press, n.d. *Price* 1*s.* 6*d.*

Bath. By R. A. L. Smith. Demy 8vo. Pp. 118. 84 illustrations. London: B. T. Batsford Ltd., 1944. *Price* 12*s.* 6*d.*

British Survey Handbooks. 2. *Rumania.* By C. Kormos. Fcap 8vo. Pp. vii+122. Map. Cambridge: University Press, 1944. *Price* 3*s.*

The Voyage of Sir Henry Middleton to the Moluccas, 1604-1606. A new and enlarged edition with an Introduction and Notes by Sir William Foster, C.I.E. Demy 8vo. Pp. xliii+209. Frontispiece. 3 maps. Works issued by the Hakluyt Society, Second Series, No. 88. London: Printed for the Hakluyt Society, 1943.

International River and Canal Transport. By Brig.-Gen. Sir Osborne Mance, K.B.E., C.B., C.M.G., D.S.O., assisted by J. E. Wheeler. Demy 8vo. Pp. viii+115. 2 maps. London: Oxford University Press, 1944. *Price* 10*s.* 6*d.*

The Survey Gazetteer of the British Isles: Including Summary of 1931 Census and Reference Atlas. By John Bartholomew, M.C., M.A., F.R.S.E., F.R.G.S. Crown 4to. Pp. xxxii+48 (maps)+748. Edinburgh: John Bartholomew and Son Ltd., 9th ed., 1943. *Price* 52*s.* 6*d.*

OBITUARY

The Right Hon. LORD POLWARTH, C.B.E., V.D., D.L.

Of the many press notices which have appeared about the very numerous public duties and interests of the late Lord Polwarth, few have mentioned the great assistance and the large share of time which this devoted servant of the public gave to the Royal Scottish Geographical Society, of which he was President for a double term, from 1934 to 1938, and during the Society's Jubilee and Exhibition of early maps of Scotland and surveying instruments; also as Vice-President he took an enthusiastic part in all the Society's activities in spite of failing eyesight, which made public work for him at that time increasingly difficult.

Lord Polwarth's unanimous re-election to the post of President of the Society was no empty compliment. As in all the work which this faithful friend of King and country undertook, Lord Polwarth discharged his duties to the Royal Scottish Geographical Society with singular acceptance and fidelity. Bad weather, distance, and a multiplicity of other business never kept him at home. There were few, if any, of the major lectures of the Society during his term of office at which he was not present on the platform to welcome and inspire the speaker with the "few, well-chosen words" of the perfect chairman. He had a courtesy and geniality which drew the best from everyone. And his own contribution to geographical knowledge was no small one, not only on Abyssinia—a country which he opened up to Members in the first lecture ever given to the Society on that vexed land—but also on his own native country of Scotland, to which he gave such whole-hearted devotion. The Society will treasure his all too brief share in its life and activities, and will miss him sorely from its Council-table and platform.

I. W. H.

ADAM PATTERSON GRAY, M.A., F.R.S.G.S.

The Royal Scottish Geographical Society has suffered a notable loss by the death of Mr. Adam P. Gray on September 18, 1944. He was an outstanding student of geography at Edinburgh University. After various teaching appointments, he joined the staff of Moray House and acted as Principal Master of Method and Lecturer in Geography for fifteen years. The inspiration of his teaching has extended the knowledge of geography and the importance of the geographical outlook throughout Scotland. *The Scottish Geographical Magazine* owes much to him, and his special knowledge of geography was placed at the disposal of the Edinburgh publishers. The Fellowship of the Society was awarded to him in 1911.

All who came in contact with him at the Council or in the friendly atmosphere of the Livingstone Club were impressed by his vital personality—his sound commonsense, great fund of humour, and his whole-hearted zest for life. He served in the war of 1914-18, mostly in Italy, and it was characteristic that the hardships he endured became nothing more to him than a source of amusing reminiscences.

Our sympathy is respectfully offered to Mrs. Gray and to their two sons, both of whom are on active service. G. S. D.

Sir AUREL STEIN, K.C.I.E., F.B.A., Ph.D., D.Litt., D.Sc., D.O.L.

Since the death of Sir Aurel Stein at Kabul on October 26, 1943, numerous tributes have been paid in scientific and other periodicals to the life and work of this most distinguished explorer and archaeologist. His activities have, of course, been reviewed in *The Scottish Geographical Magazine* from time to time, but have been even more closely linked with the work of the Royal Scottish Geographical Society. His memorable address on Explorations in Central Asia, 1906-8, delivered before the Society on January 27, 1910, has been recorded in the pages of the *Magazine*. He did to the end what he felt was his duty to science, and by his passing the Society sustained the loss of one of the most eminent recipients of its Honorary Diploma of Fellowship. J. H. K.

VANS DUNLOP SCHOLARSHIP IN GEOGRAPHY

A Vans Dunlop Scholarship in Geography was instituted by the University of Edinburgh in 1943 and has now been awarded to James M. Houston, M.A., who received the Society's Scottish Universities Medal for 1942-1943.

ROYAL SCOTTISH GEOGRAPHICAL SOCIETY

PROCEEDINGS

A Meeting of Council was held on the 21st September 1944.

Diploma of Fellowship: The Diploma of Fellowship was awarded to Dr. William Moseley Brown, New York, a Major in the U.S.A. Signal Corps, and formerly Professor in the University of Guadalajara, Mexico, for his work in connection with South American exploration.

LECTURE SESSION, 1944-45

January, February, March 1945

EDINBURGH, *Usher Hall.*

Evening Meetings.— Thursdays, at 7.30 p.m. (period of full moon).

January 25th.—J. M. Wordie, M.A., F.R.S.E., on "The Canadian Arctic and North-West Greenland." Illustrated (coloured film and lantern).

February 22nd.—N. E. Odell, Ph.D., A.R.S.M., F.R.S.E., on "The Last Everest Expedition (1938) in Relation to Earlier and Future Attempts." Illustrated.

March 22nd.—Sir Robert N. Reid, K.C.S.I., K.C.I.E., Governor of Assam, 1937-1942, on "The North-East Frontier of India." Illustrated.

Lothian Road Church Hall.

AFTERNOON MEETINGS.—Wednesdays, at 3 p.m.

January 10th.—Paymaster-Commander C. R. V. Gibbs, R.N., on "Some Lonely Austral Islands." Illustrated.
January 17th.—Alan C. Browne, F.R.G.S., A.R.C.A., on "Tasman, New Zealand's Finest Ice Peak." Illustrated.
January 31st.—Isobel W. Hutchison, F.R.S.G.S., on "Blenheim and Woodstock : The Churchill Country." Illustrated.
February 7th.—Rev. H. G. Newsham, M.A., Former Minister of Union Church, Shanghai (1932-1937), on "Shanghai and North China." Illustrated.
February 14th.—Andrew C. O'Dell, M.Sc., on "Life in the Shetland Isles." Illustrated.
March 7th.—Mrs. M. H. Austin, on "The Buccaneers and the Spanish Main." Illustrated.
March 14th.—Capt. D. Goodall, M.B.E., on "The Aden Protectorate." Illustrated.

GLASGOW, *Lyric Theatre.*

Saturdays, at 3 p.m.

January 27th.—Robert M. Adam on "National Parks for Scotland." Illustrated.
February 24th.—Andrew C. O'Dell, M.Sc., on "Life in the Shetland Isles." Illustrated.
March 24th.—Sir Robert N. Reid, K.C.S.I., K.C.I.E., on "The North-East Frontier of India." Illustrated.

ANNUAL GENERAL MEETING

The Annual General Meeting was held in the Society's Rooms in Edinburgh, October 18, 1944, Prof. Sir D'Arcy Thompson presiding.

The Annual Report of the Council was submitted and unanimously adopted. The Financial Statement was submitted by Mr. W. O. Leitch, Hon. Treasurer, and its adoption was moved and seconded, and unanimously accepted.

The list of nominations of Office-Bearers recommended by the Council was read by the Hon. Secretary as follows :—"That the Rt. Hon. the Marquess of Linlithgow, K.T., G.C.I.E., D.L. ; Douglas Guthrie, M.D., F.R.S.E., F.R.C.S. ; Rev. A. E. Robertson, B.D. ; and R. E. Cooper, F.R.S.E., be elected additional Vice-Presidents."

"That the following Members of the Society be elected to fill the vacancies existing :—Dr. John B. Tait ; Dr. A. M. Stewart ; Dr. A. M. Cockburn ; Miss Maud Newbigin ; W. G. Leiper ; James C. Tod ; Walter A. Fisher (Principal, Leith Nautical College) ; J. Boyd Jamieson, T.D., M.D., F.R.S.E. ; Mrs. Katherine L. Addison-Smith ; Miss Agnes Bruce ; D. Alan Stevenson, F.R.S.E. ; Robert Kerr, M.A. ; J. D. Gardner, B.Sc., F.R.S.E. ; Lt.-Col. Dalyell of the Binns ; Alexander T. Gibson, M.A. ; Andrew C. O'Dell, M.Sc ; and Robert B. Oliphant. That Col. John Johnston, O.B.E., T.D., M.A., be elected Chairman of the Glasgow Branch, and that J. W. Gourlay, C.A., and Andrew M. Murdoch represent the Glasgow Branch on the Council.

"The other honorary Office-Bearers who have not resigned were re-elected. It was also resolved to nominate James A. Robertson Durham, O.B.E., B.A., C.A., Auditor, for re-appointment."

The recommendations were approved and the other honorary Office-Bearers who have not resigned were re-elected.

The Chairman took the opportunity of thanking Dr. Douglas Guthrie, the retiring Chairman of Council, also Mr. J. W. Gourlay, C.A., the retiring Chairman of the Glasgow Branch, and the other retiring Members of Council who had completed their term of office :—David Haldane, B.Sc. ; R. E. Cooper, F.R.S.E. ; T. C. Hales, V.D. ; David Ross, M.A. ; Rev. A. E. Robertson, B.D. ; J. W. Butters, B.Sc. ; W. C. A. Ross, M.A. ; J. Y. Erskine, M.A., B.Com. ; George Ballantine (Glasgow) ; Robert Thom (Glasgow) ; W. L. Christie, LL.B. ; W. J. Stuart, M.B., Ch.B. ; George F. Henderson, W.S. ; and John F. Stewart, F.R.S.G.S.

The Chairman congratulated the Society on its great increase of membership and on having gone through a difficult war period and in undertaking its normal activities. Reference was made to the Society's report to the Advisory Committee of the Scottish Education Department expressing the views of the Society on the importance of Geography in education, also to the report to the Scottish Council for National Parks giving the Society's suggestions and general considerations.

NOTICE

THE SCOTTISH GEOGRAPHICAL MAGAZINE. The destruction of national, university, public, and other libraries necessitates replenishment, and the Inter-Allied Book Centre, set up in London under the auspices of the Conference of Allied Ministers of Education, is desirous of obtaining complete sets of *The Scottish Geographical Magazine*, as well as copies published since 1938. Will, therefore, any Members able to spare their copies kindly hand them to the Secretary for transmission.

ROYAL SCOTTISH GEOGRAPHICAL SOCIETY

REPORT OF COUNCIL

SIXTIETH SESSION, 1943-1944

(1st July 1943 to 30th June 1944)

ORDINARY MEMBERSHIP

The changes during the Session were as follows :—

On 1st July		1203
New Members		389
		1592
Deduct by Death	42	
,, Resignation, lapsed, or Active Service	126	
		168
On the Roll on 30th June 1944		1424

This is divided into: Edinburgh 966, Glasgow 296 (including 13 School Corporate Members), Dundee 46, Aberdeen 29. In addition, 66 members reside in England and 21 abroad. Two new Life Members were added during the Session, making the total number of Life Members now 134. These, along with 4 Honorary Members, are included in the above total.

STUDENT MEMBERSHIP

On 1st July 1943	30
New Members	14
	44
Deduct by Resignation	2
On the Roll 30th June 1944	42
Total Membership	1466

PAYMENT OF SUBSCRIPTION

In future, the Edinburgh and district Members will pay their Annual Subscription direct to the Treasurer, Mr. A. Harrison, C.A., 21 Rutland Street, Edinburgh 3. Glasgow, Dundee, and Aberdeen Members will pay to the Hon. Local Secretary as before.

ANNUAL SUBSCRIPTION, INCREASE

It was decided to reinstate the Edinburgh subscription at 30s. with two Lecture tickets and the Glasgow subscription at 21s. The Entrance Fee still to remain in abeyance.

MEDAL AWARDS

The Livingstone Medal was awarded jointly to Miss Mildred Cable and the Misses Francesca and Eva French for their work in the Gobi Desert.

SCOTTISH UNIVERSITIES MEDAL, 1943-44—

Aberdeen University :—Christina I. Chisholm.
Edinburgh University :—Barbara M. M. Stewart.
Glasgow University :—Eric A. Allan.

Diploma of Fellowship

During the Session the Diploma of Fellowship was awarded to :—Prof. James Ritchie ; Princial J. Cameron Smail ; Dr. James Watt ; Sir Thomas B. Whitson ; Dr. L. Dudley Stamp ; Dr. John B. Tait ; and Mr. George Walker, Secretary of the Society. There are 62 Fellows of the Society.

Meetings of the Society

The Society held seven Meetings in the Usher Hall and nine in the Lothian Road Church Hall, Edinburgh. Five Lectures were held in the Lyric Theatre, Glasgow. These were generally well attended. For list and date of Lectures, see p. 116, Vol. 59, and p. 32, Vol. 60. Owing to the increased attendance at the Wednesday Afternoon Lectures formerly held in the Society's Rooms, these were transferred to the Lothian Road Church Hall, where increased accommodation has enabled a larger audience to attend.

Library and Map Department

The number of books presented for review has diminished and the Society's funds do not permit the purchase of many new books at present. It will be appreciated if Members present suitable books to the Library.

During the Session 4098 volumes were issued to Members of the Society. The following additions have been made : 210 volumes, 32 pamphlets, 122 map sheets, and 7 atlases. Of the books added, 87 volumes were presented.

In addition, 2600 lantern slides have been added to the Society's collection.

Through the generosity of Dr. James Watt, an additional room has been acquired in the Synod Hall, and this now contains the library of the Anthropological Society of Scotland and all the books and periodicals in the Royal Scottish Geographical Society relating to Anthropology, Ethnology, and Folklore. This room is also available to those engaged in study and research.

Geographical Association, Edinburgh Branch

The activities of the Branch were again renewed. Four Meetings and two excursions were held during the Session ; the total membership of the Branch is 77.

The "Scottish Geographical Magazine"

Owing to war restrictions on paper and increased cost, the *Magazine* continues to be issued three times per annum. An anonymous donor has made a seven-year covenant to pay £50 per annum towards the editorial and illustration costs of the *Magazine*.

Annual subscribers to the *Magazine* (Universities, Colleges, and Government Departments) total 128.

Geography in Schools

A deputation was sent to the Advisory Committee of the Scottish Education Department to express the views of the Society on the importance of Geography in education.

Scottish Council for National Parks

The Society is represented on this Council, and has submitted a Report giving the Society's suggestions and general considerations.

Obituary

It is with deep regret that the Council has to record the loss to the Society of 42 Members by death. Among them are Mr. W. A. Parker, D.S.O., Major John Gilmour, M.C., Mr. W. P. Sangster, C.I.E., Members of Council ; also Dr. Alexander Bremner and Mr. C. T. Macgregor, past Members of Council. Since completion of this Report the Society has also sustained the loss of the Rt. Hon. Lord Polwarth, C.B.E., V.D., D.L., Vice-President and former President ; also of Mr. A. Patterson Gray, M.A., past Member of Council.